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## **Developing Indicators of Territorial Cohesion**

*Nadia Farrugia and Andrea Gallina*

## **Research Report 1/2008**

# **DEVELOPING INDICATORS OF TERRITORIAL COHESION**

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### ***Abstract***

*Territorial cohesion, broadly defined as the possibility for the population living in a territory to access services of general economic interest, is a relatively new concept, but which is increasingly gaining importance in the academic and policy-making spheres, especially in the European Union (EU).*

*The objective of territorial cohesion, which builds on the European Spatial Development Perspective (ESDP), is to help achieve a more balanced development by reducing existing disparities, avoiding territorial imbalances and by making sectoral policies, which have a spatial impact and regional policy more coherent. It also aims to improve territorial integration and encourage cooperation between regions. Territorial cohesion complements the notions of economic and social cohesion by translating the fundamental EU goal of a balanced competitiveness and sustainable development into a territorial setting. The concept of territorial cohesion attaches importance to the diversity of the European territory which is seen as a key competitive advantage, the preservation of the European social model, and the ability of the citizens of Europe's nations and regions to be able to continue to live within their historically produced territories and regions.*

*This paper analyses the relationship between polycentric development and cohesion, describes the key EU policy steps on territorial cohesion and presents an index of territorial cohesion.*

# 1. INTRODUCTION

## 1.1 Background

Territorial cohesion, broadly defined as the possibility for the population living in a territory to access services of general economic interest, is a relatively new concept, but which is increasingly gaining importance in the academic and policy-making spheres, especially in the European Union (EU).

Territorial cohesion builds on the European Spatial Development Perspective (ESDP), which put the unbalanced and unsustainable structure of the European territory on the EU political agenda in 1999. Territorial cohesion has also been included in the draft Constitution (Article 3), while Article 16 (Principles) of the Treaty recognises that citizens should have access to essential services, basic infrastructure and knowledge by highlighting the significance of services of general economic interest for promoting social and territorial cohesion. The territorial component is also part of the 2007-2013 EU Cohesion policy, the objectives of which are convergence, regional competitiveness and employment, and territorial cooperation. It is clear that territorial cohesion is an integral part of all three objectives.<sup>1</sup>

The objective of territorial cohesion is to help achieve a more balanced development by reducing existing disparities, avoiding territorial imbalances and by making sectoral policies, which have a spatial impact and regional policy, more coherent. It also aims to improve territorial integration and encourage cooperation between regions. Territorial cohesion complements the notions of economic and social cohesion by translating the fundamental EU goal of balanced competitiveness and sustainable development into a territorial setting. The concept of territorial cohesion attaches importance to the diversity of the European territory which is seen as a key competitive advantage, the preservation of the European social model, and the ability of the citizens of Europe's nations and regions to be able to continue to live within their historically produced territories and regions.

However, the notion of territorial cohesion contained in the "Territorial Agenda" and in other relevant documents of the European Commission (EC) and of research networks that have contributed to the debate (such as ESPON, the European Spatial Planning Observation Network), is framed within an economic model that maximizes economic growth through competitiveness softened by references to ecological equilibrium. The analysis of the ESDP and other documents related to territorial development and regional policies in Europe has confirmed this ambiguity,<sup>2</sup> i.e. within the framework of the dominant economic model the two policy goals of economic growth and social cohesion are not compatible. Therefore, it is legitimate to ask whether the policy goals of territorial cohesion and economic growth are compatible.

Despite the enormous amount of funds invested in the economic development of its lagging areas, the EU is still affected by strong disparities between regions. About 50% of the EU's GDP is produced in 20% of its area accommodating 40% of its population.<sup>3</sup>

This situation might not improve in the future. If the path towards the competitiveness obsession continues, European spatial development future scenarios are less likely to be polycentric. According to the ESPON Project 3.2, the competitiveness-oriented scenario for the next two decades will "[...] clearly

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<sup>1</sup> The "Territorial Agenda" document clearly states that: "[...] territorial cohesion of the EU is a prerequisite for achieving sustainable economic growth and implementing social and economic cohesion – a European social model. In this context, we regard it as an essential task and act of solidarity to develop preconditions in all regions to enable equal opportunities for its citizens and development perspectives for entrepreneurship. We agree that regional identities and potentials, needs and diverse characteristics of the regions, cities and villages of Europe gain meaning through a policy of territorial cohesion and through other regional development policies."

<sup>2</sup> See Capecchi and Gallina, 2007b.

<sup>3</sup> Davoudi, 2003.

favour the demographic and economic development of metropolitan areas and large agglomerations, especially in the central European pentagon and in other metropolitan regions situated along the corridors originating from the pentagon, especially in the Central and Eastern European countries and in the southern parts of the Nordic countries. In general, the upper level of the settlement systems has developed more than medium-sized or small cities. There are however some exceptions to this less polycentric pattern. In the new member states and other peripheral areas, where investment motivations and location factors still continue (at least in the medium term) to include cheap labour, transnational enterprises continue to search for peripheral and smaller regions where this type of labour force is still available. This has resulted in a highly decentralised, but unstructured pattern. Various agglomerations and cities are negatively affected by the competitive growth process, especially those with old industries and low productive activities which are no longer competitive in a globalised world. Even in growing metropolitan regions, new high-tech jobs are located not only in the core cities but also in the surrounding areas where the most important resources and production factors, namely, the professional and highly skilled labour forces, are most readily available”.<sup>4</sup>

These scenarios are supported by previous forecasts, which indicate that periods of over 20-30 years, reflecting stable and optimistic trends, are needed for lagging regions to reach current levels of the wealthy regions. In “The Third Report on Social Cohesion” (2001) it is estimated that the GDP per capita of the 10 new Member States (together with the two accession countries Bulgaria and Romania) would remain below 60% of that in the enlarged EU27 until 2017 if they maintain a sustained GDP annual growth rate of 4% (1½ higher than average EU15). Only Slovenia, Czech Republic, Cyprus and Hungary would be able to reach over 75% of EU27 GDP per capita, while countries like Estonia would take up to 2027, Poland until 2035 and Latvia until 2041 to reach this threshold. If instead the annual growth rate is 2½ points higher than the average EU15 (i.e. sustained at 5% per year) convergence will take place at a faster pace, i.e. for example it will take Poland 20 years instead of 30 to reach 75% of EU27 average GDP per capita. Therefore, even with growth rates well above the average in the EU15, for most of the countries catching-up to the EU average is likely to be a long-term process.<sup>5</sup>

**Table 1 - Comparing Scenarios in the ESPON 3.2 Project, 2007**

<b>Competitiveness-oriented scenario</b>	<b>Cohesion-oriented scenario</b>
The competitiveness-oriented scenario is likely to generate stronger economic growth and higher competitiveness, with a more substantial emergence of new technologies. It will also produce higher environmental and social costs related to growing disparities at various scales, likely to result in the long range in economic and social drawbacks as well as in territorial imbalances with enhanced differences in living conditions and polarisation between areas. Economic activities and dynamic population development will be concentrated in central areas. On the macro, pan-European scale, this means the continued dominance of the area between the British Midlands and the north of Italy with some extension corridors. On a meso scale, capital cities will reinforce their polarisation.	The cohesion-oriented scenario is likely to produce a significant amount of added value in terms of territorial cohesion and balance, of demographic revival, of socio-cultural integration, of lower damages related to natural hazards, of less negative impacts on rural regions, but its economic and technological performance will probably be lower than that of the two other scenarios. The pentagon will extend significantly in all directions. In addition, several new areas of economic integration with significant critical mass will emerge in the periphery. Some of their major metropolitan areas will rise in the European urban hierarchy. On the meso-scale, polarisation potentials are distributed among a greater number of urban areas with mid-sized cities playing an important role.

Source: ESPON (2007) *Scenarios on the territorial future of Europe*, ESPON Project 3.2 Final Report, Luxembourg 2007, p. 53.

<sup>4</sup> ESPON (2007) *Scenarios on the territorial future of Europe*, ESPON Project 3.2 Final Report, Luxembourg 2007.

<sup>5</sup> Third Report on Economic and Social Cohesion, 2001, op. cit., p. 16.

## 1.2 From Territorial Cohesion to Polycentric Development

The need to creatively develop new paths and models that are closer to these issues on a multidimensional and multidisciplinary perspective cannot be further delayed.

*Territorial cohesion* is a corollary to *economic cohesion*, i.e. the reduction of regional or national disparities,<sup>6</sup> and to *social cohesion*, broadly defined as the presence of shared values, reduced wealth disparities, absence of exclusion mechanisms, opportunity to participate, social networks and territorial belonging and identity.<sup>7</sup> These three notions of cohesion are the hallmark of the European Social Model (ESM) based on values such as solidarity, justice and responsibility towards stakeholders, as opposed to the neoliberal economic model based on maximizing profits for the shareholders.<sup>8</sup>

Common to the three notions of cohesion is the goal to reduce disparities (as for example in income, in access and in capabilities), and to promote environmentally friendly investments. Yet, although these notions underline the ESM, they are to date used as goals to mitigate the effects of economic convergence and competitiveness policies, which form the backbone of the Lisbon Agenda.

**Table 2 – Territorial, Economic and Social Cohesion Goals**

Notion of cohesion	Policy Goals	Long Term Objectives
<b>Social cohesion</b>	<ul style="list-style-type: none"><li>▪ Reduction of disparities, inequalities and social exclusion;</li><li>▪ Strengthening of social relations, interactions and ties.</li></ul>	Create and increase social capital
<b>Economic cohesion</b>	<ul style="list-style-type: none"><li>▪ Increase sustainability of economic growth;</li><li>▪ Redistribution of economic growth across territorial units (reduction of income gaps).</li></ul>	Create and increase economic and financial capital
<b>Territorial cohesion</b>	<ul style="list-style-type: none"><li>▪ Increase access to services of general economic interest across the territory;</li><li>▪ Avoid territorial imbalances;</li><li>▪ Polycentric territorial systems, both in urban and rural areas, enabling the existence of opportunities for all.</li></ul>	Create and increase territorial capital

Therefore, should the policy objective of territorial cohesion contribute to build a different economic model, together with economic and social cohesion, or should this be used as a “mitigating” factor of the negative consequences of the application of the current economic model on the territorial capital?

A different view proposed under the term “polycentric development” proposes to combine the three notions of cohesion as an instrument to achieve a more balanced and sustainable Europe both within and in the relationship with third countries. The notion of territorial cohesion and its measurement will be particularly deepened in the frame of this research.

In this context, polycentric development is not reduced to urban-rural relationships or to the creation of new spatially defined territories (pentagons, bananas, triangles, etc.). Polycentric development is a term widely used in spatial planning and geography literature, and has been borrowed by economic

<sup>6</sup> The notion of economic cohesion can also refer to the reduction of individual income dispersion indexes, but as pointed out by Fadda (2006) this makes the concept blurred and difficult to be operationalised as an instrument for local development policies. In this paper, the concept is used in terms of the reduction of regional or national disparities as criteria for territorial policies and redistribution at aggregate levels. Fadda (2006) *Competitività e coesione nella nuova programmazione comunitaria*, *Argomenti*, Nr.17, Ottobre 2006, Franco Angeli, Milano, pp. 13-36.

<sup>7</sup> Berger-Schmitt Regina (2000) *Social cohesion as an Aspect of the Quality of Societies: Concept and Measurement*, EuReporting *Working Paper No. 14*, Centre for Survey research and Methodology (ZUMA), Social Indicators Department, Mannheim, 2000.

<sup>8</sup> For an analysis of the two “pure” economic models i.e. the neoliberal and the solidaristic economy model and how the EC/EU documents swing between two models even within the same document, see Capecchi and Gallina, 2007a and 2007b.

development literature to indicate the territorial dimension of the solidaristic economy model that underpins the ESM.<sup>9</sup>

Polycentric development proposals start with the assumption that the challenges confronting Europe today cannot only be reduced to the debate between competitiveness and cohesion. The incompatibility of competitiveness and cohesion as policy goals is acknowledged and any further attempt to disguise this is misleading. Polycentric development assumes that climate change, new energy paradigms, population ageing, international migration, globalisation and international relocation of activities have different impacts on the different regions, and therefore different responses are needed.

In a Polycentric Development Model, the main priorities for policy makers at EU level are focused on economic, social and territorial cohesion and not on global competitiveness. This does not imply that improvements in the production systems are neglected, but they are subordinated to improvements in cohesion levels. For example, increases in competitiveness that are based on precarious working conditions are not included as a policy option. Similarly, policies that widen territorial disparities (such as concentration of infrastructure investment in core areas) should be avoided and instead policies improving the quality of life of peripheral regions are preferred.

All areas of policies such as family, education, employment, immigration, inclusion and integration, redistribution and equal opportunities become the norm. Life-long learning and ICT becomes functional to re-establish the viability of peripheral areas. Migration policies are promoted and used as instruments to improve the relationship between migrants' home countries and the EU. Assimilation policies are replaced by inclusion and integration policies. The vitality of peripheral areas is enhanced through the enhancement of traditional production systems and adding value to existing local production systems as a mechanism to face global competition from cheap-labour countries. Innovation and technology policies can be re-addressed to these aims and liberalisation of services can be effected only if the private sector can prove to be accountable for the delivery in a responsible way.

### 1.3 Research Hypotheses

The notion of territorial cohesion is and remains problematic for a lot of reasons. It is not clear what kind of policies have to be implemented to attain it and the fact that a precise definition of territorial cohesion is not provided by the ESDP adds to the ambiguity of the concept. Also, while one of the guidelines of the ESDP is the promotion of polycentricity within the EU, precise definition of the term polycentricity is elusive and there are various interpretations of the concept and just as there are several definitions of polycentricity, there are also several measures of mono/polycentricity for national urban systems. Two of the most common are the rank-size order of cities and the distribution of cities over the territory.<sup>10</sup> Although, these measures of polycentricity are important ones, they attempt to measure a rather narrow definition of polycentricity, focusing on the spatial planning aspect of polycentricity. They do not consider the socio-economic aspects of polycentricity.

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<sup>9</sup> In economics, the appearance of the term polycentric development and polycentric world is attributable to Samir Amin (1990), "De-linking: Towards a Polycentric World", Zed Books, London, which envisages the multiple coexistence of cultures and economic powers. The term is also used in post-colonial studies to indicate an alternative to both Eurocentric secular modernity and reactionary fundamentalisms or Eurocentric superficial multiculturalism (cf. Wail S. Hassan (2001) *Alternatives to Secular Modernity*. Review of: *Unveiling Tradition: Postcolonial Islam in a Polycentric World* (By Anouar Majid), in *Jouvert: a Journal of Postcolonial Studies*, Volume 6, Issues 1 - 2 (Fall 2001) published by the College of the Humanities and Social Sciences North Carolina State University, Raleigh NC). Polycentric development is also used in the World Social Forum to indicate the democratic and plural dimension of the movements critical towards capitalist globalization which is monocentric in its nature.

<sup>10</sup> E. Meijers and K. Sandberg (2006), *Polycentric Development to Combat Regional Disparities? The Relation Between Polycentricity and Regional Disparities in European Countries*, ERSA Conference Papers No.6, August 2006.



Another problem related to the concept of territorial cohesion is that the EU does not in any way hint at specific indicators for measuring territorial cohesion, making it difficult to deal with the concept in an analytical way. ESPON has developed indicators, typologies, analyses, data, scenarios etc... in order to help integrate the territorial dimension into EU policy development. However, specific indicators to measure territorial cohesion have not yet been developed.

This paper will thus address two research hypotheses, as follows:

1. Polycentric development offers a broader approach to territorial cohesion and is not bound to the hypothesis of convergence or to a new functional relationship between rural and urban centres. More specifically, the research will address the notion that there is a need for “polycentric” development even within urban and rural areas. Polycentric development is considered as a notion including social, economic and territorial cohesion simultaneously.
2. Territorial cohesion should include a broader set of variables. This implies that territorial cohesion and polycentricity should not be limited to spatial planning but should be widely defined to include socio-economic variables. The development of a measure of territorial cohesion is both a scientific issue (as it leads to the exploration of possible solutions) as well as a political issue (in view of the potential use of the indicator to allocate aid to disadvantaged territories).

Besides being of interest to academics, this research will be highly topical for the public and private actors (municipalities, provinces, regions, business enterprises, trade unions, enterprises and research centres, universities, associations of civil society, educational and vocational training institutions) who are responsible for managing the development within the different territories of the EU. Since the research is a small-scale project, it can also provide the basis for a proposal for the Interreg IVC programme or to bid for other European Funds projects, in order to further extend the work produced in this study.

## **1.4 General Contents of the Report**

This report will be made up of five sections. Following this introduction, which provided a general introduction to the report, its scope and general contents, Section 2 will provide definitions of polycentricity and territorial cohesion. Section 3 will present a review of the literature related to these two concepts, while Section 4 analyzes the socio-economic importance of the measurement of territorial cohesion. Section 5 presents a territorial cohesion index, results and conclusions and proposes further research on the issues highlighted in this study.

# **2 DEFINITION OF POLYCENTRICITY AND TERRITORIAL COHESION**

## **2.1 Definition of Polycentric Development**

The term polycentric development present in the ESDP and subsequent documents is juxtaposed to that of “monocentric” development which considers investment in research and innovation in the stronger areas more important, thereby provoking further imbalances between the territories. A “polycentric development” is a strategy that considers the possibility of spill-over effects of investments or projects in

all areas of the territory, without automatically assuming that the positive effects in the central areas will spill over into the peripheral areas.

In the ESDP and other EC/EU documents on regional development there are many references to “polycentric development” in an attempt to provide an integrated spatial development strategy for the EU aiming for a balanced and sustainable territorial development.<sup>11</sup> Within the debate that followed the ESDP and its articulation during the seminars organised by ESPON and various INTERREG projects, the concept of “polycentric development” has followed two main directions.

The first direction was to identify projects and initiatives according to their territorial dimension. In this case, it is possible to depart from a general wide territorial dimension to reach territorial realities, which are more spatially delimited. Among the wider realities, the starting point is to consider *meso-regions* that can include several nations sharing political, economic and cultural traits which could be the basis for creating “rings of solidarity”.<sup>12</sup> From the meso-region, it is possible to move to the regions and to three different territorial aggregations: islands, rural areas and mountainous areas. When these three territorial aggregations are considered, it is important to search for common solutions to common problems within territories that face very similar problems and opportunities. Finally, it is also possible to consider territorial aggregations which are smaller – such as cities, peripheries, small towns and small communities.

In the ESDP, the meso-regional perspective, such as the Scandinavian, Mediterranean and Eastern European, is deemed fundamental. Nowadays, the problems of the *meso-regions* are even greater when considering the diversity introduced in the EU, following the accession of Eastern European countries. In this light, it is evident that between the European dimensions and the national dimensions it is always more important to take into consideration the *meso-regional* spaces that are linked by economic and cultural traditions and common exchanges.

This polycentric spatial dimension indicated by *meso-regions* is integrated in the ESDP documents in the form of *specialized areas*, such mountainous areas and islands, cross-border, disadvantaged and isolated areas, small and large cities, rural cities, and in all possible relations between different “territorial pacts” of local areas. Subsequently, there lies a very wide articulation of the territorial spaces for which various strategies of governance can be applied. In this process, it is deemed necessary to take into consideration that both the *meso-regions* and the specialized areas could be considered as either “inflexible”, i.e. strictly linked to the European political and geographical borders, or from a wider perspective that considers it necessary to create bridges between Europe and the rest of the world in the perspective of global polycentric and sustainable development.

A polycentric Europe can contribute towards extending the principle of balanced and sustainable development to the external dimension of the EU’s regional policies. In fact, the concept of meso-regions is supported by two pillars, namely *economic co-development*, i.e. development with economic growth generalised across all actors involved and *political co-determination*, i.e. the joint involvement of all social and economic actors in the decision-making process.<sup>13</sup> In the meso-region, similar levels of specialisation, but different levels of technological capability, are exploited in order to co-develop the production systems that aim to satisfy existing and emerging needs and markets.

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<sup>11</sup> Davoudi, 2003, p. 988.

<sup>12</sup> Amoroso B., 1995, Il problema dello sviluppo e gli anelli di solidarietà, in AAVV, La strategia democratica, Data News, Roma, pp. 133-146, in Gallina A. (2003) (ed.) *Meso-regions and Globalisation*, Federico Caffè Centre, Roskilde University, Roskilde.

<sup>13</sup> Group of Lisbon (coordinator R. Petrella), Limits to Competition, 1995, Cambridge MA, MIT Press; Il bene comune. Elogio della solidarietà, Diabasis, Milan 1997; Il diritto di sognare, Sperling & Kupfer Editori, Milan 2005; Petrella, 1998, Technological Innovation and Welfare, Concepts and Transformation, Vol. 3 nr.3, pp. 283-298.

The second direction that emerged in the debates on polycentric development is that of the *dimensions and the forms of local development*. For example, Cliff Hague of the UK ESPON Contact Point<sup>14</sup> started with Michael Porter's model of the "diamond of competitiveness"<sup>15</sup>, and then introduced other dimensions such as the quality of the environment and the local-global interactions, thereby allowing projects and documents to distance themselves from the neoliberal model implicit in Porter's diamond. Similarly, Cappechi reconstructed forms of local development in the Emilia Romagna region, including *industrial districts* (such as the district of textiles in Prato, clothing in Carpi, ceramics in Sassuolo...), development based on a *single enterprise* (as in the case of Olivetti in the area of Ivrea), the presence of different *clusters in the dynamic city*, and the possibility of a development model based on the '*hundred flowers*' such as the one taking place in the area of Imola.

From a methodological perspective, the interest in these different forms of territorial development largely means paying attention to the history of the vocations and the entrepreneurial capacities present in the given territory. It is therefore of great importance to take into consideration the history of the enterprises and the actors of the territory before any transfer of knowledge and of management forms takes place.

These two directions contribute to the articulation of the concept of polycentric development, but do not allow the identification of the two main choices that the European projects and initiatives starting from ESDP are due to face: a) an alternative to the neoliberal and solidaristic economy when Europe enters in the relationship with the rest of the world, i.e. polycentric development with neighbouring and third countries; and, b) the identification of a new idea of mundiality and local action, i.e. polycentric development at the local level within urban and rural areas and between them.

#### **a. Polycentric development in the relationship Europe/Rest of the World**

It is expected that a polycentric strategy integrates the internal dimension with the external ones. The EU chooses a polycentric dimension which is only internal and which is unable to avoid the tension with the external one. For example, the issue of social responsibility of enterprises is seen in many documents of the ESDP only in relation with Europe and it does not take into consideration the relationships with nations in the rest of the world with which the European multinationals and transnational enterprises work. Other issues, which are completely absent in the EC/EU documents on regional and spatial development, are the presence of migrants from the rest of the world in the EU, and the relationship between EU and the migrants' country of origin. Also, the relationship between the EU and the Mediterranean meso-region is not taken in due consideration in the ESDP and subsequent documents, despite the intense cultural, economic and political exchanges that have been present for centuries.<sup>16</sup>

#### **b. Polycentric development at the local level: The identification of a new idea of mundiality and local action**

To define possible alternatives of polycentric development at the local level, a new idea of mundiality and a new idea of local action need to be identified.

<sup>14</sup> C. Hague, "Competitive and Cohesion in North West Europe: The Implication of ESPON Results", *Paper presented for the London Seminar* 11-12 July, 2005.

<sup>15</sup> M. Porter, *The Competitive Advantage of Nations*, Free Press, New York 1990; M. Porter, *On Competition*, Harvard Business School Press, Harvard 1998; M. Porter, "Clusters and the new economics of competitions", *Harvard Business Review*, 6, 1998, pp.77-90; M. Porter, "Location, competition and economic development, local clusters in a global economy", *Economic Development Quarterly*, 14, 1, 2000, pp.15-34.

<sup>16</sup> For the areas of co-development in the Mediterranean meso-region see Andrea Gallina (2005) *Economie Mediterranee. Tra globalizzazione e integrazione meso-regionale*, Ed. Città Aperta, Troina.

A new idea of mundiality is illustrated by the theoretical positions of Riccardo Petrella. According to Petrella, the basis of the social contract defined by the national welfare states (the right to work, the fight against poverty, the social protection, and the promotion of equal opportunities) needs to be redefined on a global scale. The strategy to follow is the re-appropriation of the common goods, starting from water and moving rapidly to health, education and environment. According to Petrella, “all countries of the world need to build a good society on a global scale. The meeting is with the global solidarity and not with the national or continental solidarity”. It is therefore necessary to think about the “common good” starting with water, which can be defined as the “first global common good”, moving on to other commons such as health, education, and the environment. The common goods cannot be subjugated to the market, and thus cannot have a price tag.

Within this perspective, polycentric development supports the idea of mundiality antagonistic to that of capitalist globalization, in a way that promotes the pacific co-existence of different cultures, modes of production and political systems in the world.

The social and economic proposal of Petrella is to begin with a new idea of world welfare that can define the contracts between nations by completely changing the current system of international economic organisations that support multinational corporations and that have aided the creation of inequalities and conflicts. The term globalisation (adopted by neoliberal thinking) is substituted with the term “mondialisation”, and the term globality substituted with that of mundiality.

Starting from a new concept, that of “mundiality” (and that of “humanity”) it is possible to reach the local where enhancing the “other” in a positive manner is essential and being aware of the “other’s” existence is a prerequisite for our own existence. From the actions at the global level it will be possible to reach a local level of action.

### **c. Searching for polycentricity**

The definition of “polycentric development” is therefore the result of a choice or of a non-choice between a neoliberal development model and a solidaristic economy model and from the presence/absence of understanding a new idea of mundiality and local action.

The analysis of the ESDP and documents that followed has also led to further reflections on this concept. Indeed, one should add the notion of “polycentricity”<sup>17</sup> to the notion of polycentric development (as a strategy opposed to the monocentric model of convergence between Centre and Periphery) and polycentrism (as a territorial structure in which there are several functional interconnected spokes), referring to the abstract character that makes a territorial structure polycentric.

*Polycentricity* can be considered as a concept bridging *growth* and *equilibrium* since economic and functional integration can be achieved without determining structural territorial imbalances. According to Salone, “polycentricity” can stem from two different processes:

1. A *structural* process (morphologic, economic, functional) resulting from endogenous and spontaneous spatial dynamics (the networks of flows between the different spokes) and refers to the distribution of urban centres in a given territory;

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<sup>17</sup> C. Salone, “The role, specific situation and potentials of urban areas as nodes in a polycentric development” Paper presented at the national workshop “I partners italiani nel progetto ESPON”, Roma, 15 January 2004.

2. An *institutional* process based on the structural forms of polycentrism but supported from the cooperation between various centres within a given territory and resulting from policies aiming for complementation, specialisation and synergies.

A polycentric system or “polycentric development” is therefore characterised by three main components: *a)* a functional division of labour; *b)* economic and institutional integration; *c)* political cooperation.

In other words, polycentric development takes into account the capacity and competences that can have different characteristics such as: *i)* capacities and competences diffused within the considered territories; *ii)* capacities and competences specialised and embedded only in some places; *iii)* organisation of a knowledge economy with the presence of knowledge and training “structures” (research centres, specialised faculties, etc.).

Depending on the choice between a neoliberal model and a solidaristic economy model it is evident that both the *structural* and the *institutional* process can change, and policies can selectively activate the capacities and competencies of the territory concerned, not only limited to the internal dimension but also taking into account the capacities and competencies of the external territories to which the persons and the enterprises are connected.

### **3 REVIEW OF THE LITERATURE ON TERRITORIAL COHESION**

The topic of territorial cohesion has attracted a lot of interest from European policy-makers and researchers. This is manifested in the large number of documents published by the European Commission which are in some way or another related to the subject, as well as the numerous working papers published by researchers on the topic. This section will provide a review of the main documents published as well as discuss the economic importance of measuring territorial cohesion.

#### **3.1 European Commission Reports on Economic and Social Cohesion**

The European Commission publishes Reports on Economic and Social Cohesion, every three years, regulated by Article 159 of the Treaty. These reports analyse the progress made towards achieving economic and social cohesion, and on the manner in which the Member States' and Community's policies have contributed to it. The first report was published in 1996, while the last and fourth report was published in 2007. An overview of trends will be provided from the most recent report, while references to territorial cohesion and the policy directions in this respect will be highlighted from all reports.

##### **a. Fourth Report on Economic and Social Cohesion**

The fourth cohesion report, published in 2007, provides, firstly, an update on the situation and outlook with regard to economic, social and territorial cohesion and, secondly, an analysis of the impact of policy at national and Community level on cohesion in the Union. It is the first report which provides the economic, social and territorial situation of the enlarged Union of 27 Member States and 268 regions.

The report seems to indicate that cohesion policy is one of the policy tools that can be used to achieve territorial cohesion. In fact, it states that the main aim of cohesion policy remains to reduce disparities

between the Member States and regions through the concentration of resources on the less developed areas. Indeed, for the period 2007-2013, 85% of the available resources will be concentrated on the poorest regions and countries, compared to 56% in 1989.

The new Member States, which represent around 21% of the population of the EU27, will be receiving just over 52% of the total over the period. Presenting the report, Danuta Hübner, Commissioner responsible for regional policy, said: “Cohesion policy is all about providing opportunities to each EU citizen wherever they live by reducing disparities between regions, by mobilising unused potential, by concentrating resources on growth-generating investments”, while Vladimír Špidla, EU Commissioner for Employment, Social Affairs and Equal Opportunities, said: “This policy has helped to reducing social exclusion and poverty and to improving administration and public governance, particularly at sub-national level. In so doing, the policy has contributed to the growth of GDP and the reductions of disparities in the Union”.

The report states that the largest beneficiaries of cohesion policy during the period 1994-2006 were Greece, Spain, Ireland and Portugal. Between 1995 and 2005, Greece reduced the gap with the rest of EU27, moving from 74% to reach 88% of the EU27 average in 2005. By the same year, Spain and Ireland had moved from 91% and 102%, respectively, to reach 102% and 145% of the Union average. At the same time growth in Portugal has been below the EU average since 1999. In 2005 its GDP per head was 74% of the EU average. The report also states that the GDP of the three Baltic States has almost doubled over the decade from 1995 to 2005, with Poland, Hungary and Slovakia also performing well, with growth rates more than double the EU average.

Furthermore, the report states that between 1995 and 2004, the number of regions with a GDP per head below 75% of the EU average fell from 78 to 70 and the number of those below 50% of the EU average declined from 39 to 32. The lagging regions in the EU15, which were major recipients of support under cohesion policy during the period 2000-2006, showed a significant increase in GDP per head relative to the rest of the EU between 1995 and 2004. In 1995, 50 regions with a total of 71 million inhabitants had a GDP per head below 75% of the EU15 average. In 2004, in nearly one in four of these regions home to almost 10 million, GDP per head had risen above the 75% threshold.

The evidence in improving administration and governance is the adoption of the principle of partnership. The report states that the partnership principle is a fundamental principle underpinning all aspects of cohesion policy – programming, implementation, monitoring and evaluation. It goes on to state that this has now been widely accepted as a key element of good governance, as the system of multi-level governance, based on a strategic approach and involving Community, national, regional and local authorities and stakeholders helps to ensure that actions are adapted to circumstances on the ground and that there is a genuine commitment to success. The report does not however, provide any hard facts to support these statements. In fact, Vladimír Špidla states that the improvement has mainly been at the sub-national level, but there are no statistics or indicators to support this.

There is no statistical evidence on the effect of cohesion policy on reducing poverty and social exclusion. Indeed, the report mentions social exclusion just once in a footnote and poverty is discussed only within the context of analyzing the ‘at risk of poverty’ in the EU. It does not provide a comparison with previously published statistics in order to enable an analysis of whether ‘at risk of poverty’ has in fact decreased. Indeed it asserts that poverty remains a challenge. It should be noted that the report states that statistics on poverty are not available and that is why statistics on ‘at risk of poverty’ are being used.

The report states that cohesion policy has had a proven effect in helping the EU’s regions to develop, but that it will face some new challenges in the years ahead. It shows that convergence is occurring at a national and regional level, and that this is expected to continue. In 2004, the top regions (with 10% of the

EU population) had a GDP per head that was almost 5 times higher than that in the bottom regions (with 10% of the EU population) while in 2000 it was 6 times higher. The convergence is due to increases in productivity among the new Member States. In fact, over the period 1995-2004, growth of productivity has been high in the regions of the new Member States. However, in 29 regions (notably in France, Italy and Spain) productivity has decreased. Preliminary estimates for the period 2000-2013 (2004-2013 for the new Member States) suggest an increase in GDP compared to a baseline scenario without cohesion policy in many of the EU Member States, ranging from around 3.1% in Portugal to around 9.0% in the Czech Republic and Latvia.

The report states that European cohesion programmes have helped to directly promote regional convergence and employment as well as contributing to reduce social exclusion and poverty. Cohesion policy co-finances the training of 9 million people annually, more of half of them women, leading to better employment conditions and higher income. However, although employment rates converged at the EU and national levels and disparities in unemployment rates have decreased, poverty remains a challenge and around 24 million additional jobs need to be created to reach the Lisbon target of employment rate. More than a third of these jobs have to be created in only 30 regions in Poland, Spain, Romania and Southern Italy. With regard to education levels, it is reported that these are increasing but remain low in lagging regions. Furthermore the report indicates that cohesion policy supports growth and job creation also outside the convergence regions.

The report demonstrates that cohesion policy supports the innovative capacity of Member States and regions and that cohesion policy investment in people has high returns. Regions in Scandinavia, Germany, the UK, and the Netherlands emerge as the best innovators, while in 86 regions home to a third of the EU population, performance is below average. The report illustrates that cohesion policy has fostered integrated approaches to development and promoted partnership as a key element of good governance. The report shows that cohesion policy helps to improve the quality of public investment and leverages public and private capital in support of productive investment. The statistics indicate that public investment over the past years has been on a declining path as budgets are confronted with the consequences of an ageing population, namely reform of pensions, more costly education and health systems, as well as economic reform leading to consolidation of public finances. Public investment currently stands at around 2.4% of GDP, compared to 2.9% of GDP in 1993. The report also shows that decisions and management on public investment is slowly but steadily being decentralized to regional and local levels. Indeed, it is reported that between 2000 and 2005, public expenditure at regional and local levels has been increasing annually by 3.6%, faster than GDP (1.7%) and total public expenditure (2.4%).

On territorial cohesion, the report states that the traditional economic “core” of Europe (the area between London, Paris, Milan, Munich and Hamburg) contributed a substantially smaller share of the EU27 GDP in 2004 than in 1995, even though its share of the population remained stable. This is due to the emergence of new growth centres such as Dublin, Madrid, Helsinki and Stockholm, but also Warsaw, Prague, Bratislava and Budapest.

The report states however that within the Member States, economic activity has become more concentrated in capital city regions throughout the EU, with the exception of Berlin and Dublin. Indeed, between 1995 and 2004, on average the capital city region’s share of national GDP increased by 9%, while their population grew by 2%. Increasing concentration of population and economic activity in capital city regions could in the longer term constrain overall economic growth as negative externalities such as increases in housing costs, shortages of business space, congestion and pollution negatively affect their image and competitiveness.

There is an indication that the dominant trend in European cities is towards suburbanization, which places greater strains on the urban transport system, and can lead to the economic decline of the traditional city

centre. Also, the concentration of deprivation in urban neighbourhoods remains an issue in many European cities. In fact, despite the concentration of employment in cities, city dwellers, especially the less qualified, have difficulty finding a job, while one third of jobs are taken by people commuting into the city.

It is also reported that significant outward migration from rural areas is still the prevailing trend in large parts of the EU, due to the lack of job prospects outside agriculture and lower living standards. This has cumulative effects on the areas concerned, leaving them with an ageing population and shrinking basic services.

Growth and employment in Europe require policies which are able to anticipate and manage new challenges, namely those related to demography, industrial patterns and restructuring and climate change. Some of these challenges are particularly relevant to cohesion policy since they have an uneven impact on Europe's territory and may widen social and economic disparities.

The report states that the different Community policies – R&D and innovation, agriculture, competition and state aid – have the potential to increase the effectiveness of cohesion policy, if economic, social and territorial circumstances are taken into account. It concludes that while this is increasingly the case, there are still synergies to exploit.

#### **b. Fourth Progress Report on Cohesion**

The fourth progress report on cohesion, entitled “The Growth and Jobs Strategy and the Reform of EU Cohesion Policy”, makes reference to the 2005 Commission document “Cohesion Policy in Support of Growth and Jobs: Community Strategic Guidelines, 2007-2013”. The draft Guidelines reflect the role of cohesion policy as the main instrument at EU level in the realization of the EU's ambition to become: (a) a more attractive place to invest and work in; (b) an area of high growth, competitiveness and innovation; and (c) a place of full employment and higher productivity with more and better jobs.

Reference is also made to the Communication entitled “Cohesion Policy and Cities: The Urban Contribution to Growth and Jobs in the Regions”. It is based on the notion that while recognizing that many competencies are held at the national or regional level, there is much that cities can do, particularly when their capacity for action is reinforced by European programmes. The guidelines for various priority areas on which cities can take action include improving investment readiness, promoting entrepreneurship, employability and the growth of the knowledge economy, community development, and reducing disparities between neighbourhoods and social groups, improving local security and crime prevention – areas which all lead to enhanced territorial cohesion.

New instruments to assist Member States and regions to improve the quality of projects, while at the same time, making Community financial resources work harder by increasing the leverage effect of cohesion policy include:

- JASPERS: Joint Assistance in Supporting Projects in European Regions – a technical assistance partnership between the Commission, the European Investment Bank and the European Bank for Reconstruction and Development;
- JEREMIE: Joint European Resources for Micro to Medium Enterprises – a new initiative established in partnership with the European Investment Fund;
- JESSICA: Joint European Support for Sustainable Investment in City Areas – a framework for enhanced cooperation between the Commission and the European Investment Bank, the Council of Europe Development Bank and other International Financial Institutions.



There is also a new specific priority under the convergence objective aimed at strengthening institutional capacity and the efficiency of public administrations and public services at national, regional and local levels, as well as new regulation on rural development.

The report stresses that with the relaunch of the Lisbon strategy, cohesion policy has been recognized as a key instrument at the Community level, contributing to the implementation of the growth and jobs strategy. It should be noted that the Cohesion policy budget for the period 2007-2013 amounts to EUR 308 billion, equivalent to 0.37% of the GNI of the EU27, more than half of which is due to the new Member States. However, the picture is not so positive in terms of territorial cohesion objectives. Indeed, the budget represents a reduction of 10% compared to the Commission's proposal, with the European territorial cooperation objective being 50% lower.

### **c. Third Progress Report on Cohesion**

The Third Progress Report on Cohesion, entitled "Towards a New Partnership for Growth, Jobs and Cohesion", is mainly a report on economic cohesion and to a lesser extent on social cohesion. In fact, the report includes no specific reference to territorial cohesion. Among other things, it reports the similarities between the Lisbon strategy and cohesion policy expenditure priorities and states that the degree of congruity appears to be significantly higher in the relatively more prosperous regions while it is lower in the less developed regions.

### **d. Third Report on Economic and Social Cohesion**

The Third Report on Economic and Social Cohesion, entitled "A New Partnership for Cohesion: Convergence, Competitiveness and Cooperation", acknowledges that the wide disparities in output, productivity and employment, which persist between countries and regions, stem from structural deficiencies in key factors of competitiveness, inadequate endowment of physical and human capital (infrastructure and work force skills), a lack of innovative capacity and effective business support, and a low level of environmental capital (a blighted natural and/or urban environment). It notes that countries and regions need assistance in overcoming these structural deficiencies and in developing their comparative advantages in order to be able to compete both in the internal market and outside. The cost of not pursuing a vigorous cohesion policy to tackle disparities is stated to be measured not only in terms of a loss of personal and social well-being but also in economic terms, in a loss of the potential real income and higher living standards.

It is reported that development problems are more acute in lagging regions which lack the necessary infrastructure, labour skills and social capital to be able to compete on equitable terms with other parts of the Union. Reference is also made to the European Employment Strategy (EES), which was revised in 2003, in view of the EU enlargement, and was directed at supporting Member States' efforts to reform their labour markets, achieve full employment, increase quality and productivity at work and reduce social disparities, and to the Sixth Action Programme, entitled "Our Future – Our Choice", which sets out the environmental actions necessary to sustain the pursuit of the EU's economic and social objectives.

The document devotes a whole chapter to territorial cohesion, a concept which extends beyond the notion of economic and social cohesion by both adding to this and reinforcing it. The report states that in policy terms, the objective is to help achieve a more balanced development by reducing existing disparities, avoiding territorial imbalances and by making both sectoral policies which have a spatial impact and regional policy more coherent. It argues that while liberalising the markets for transport,

telecommunications and energy has led to increased efficiency and lower prices, it has also involved a threat to particular social groups or regions of being excluded from access to essential services. It states that for this reason public service obligations have been established to ensure that everyone can obtain services of general interest, of reasonable quality and at affordable prices, as required by the EU Treaty (Article 16), and that community funds have been made available to help ensure that these obligations are respected across the EU.

#### **e. Second Progress Report on Economic and Social Cohesion**

The Second Progress Report on Economic and Social Cohesion, “Union, solidarity and diversity for Europe, its people and its territory”, besides providing an analysis of the situation and trends in light of the challenge of enlargement, discusses the priorities for the future cohesion policy. It classifies these as action in the less developed regions; action outside the less developed regions; and, cooperation.

The report makes reference to studies by ESPON on the territorial component of cohesion, namely: the role, specific situation and potential of urban areas as nodes in polycentric development; urban-rural relations in Europe; transport services and networks; territorial trends and basic supply of infrastructure for territorial cohesion; territorial impact of EU transport and TEN policies; territorial impact of EU research and development policy; territorial effects of structural funds in urban areas; integrated tools for European spatial development; and, impact of cohesion policies on sustainable regional development.

It also mentions the Schroedter report, which among other things, stresses on the need to promote sustainable development, territorial cohesion in Europe and improve the polycentric, harmonious and balanced development of the Union, in accordance with the guidelines of the ESDP.

#### **f. First Progress Report on Economic and Social Cohesion**

The First Progress Report on Economic and Social Cohesion updates the analysis of economic and social cohesion presented in the second cohesion report and outlines the state of debate on future cohesion policy for the period after 2006. It reports that the Second Cohesion Report looked at several aspects of the territorial dimension of cohesion. It mentions the very high territorial concentration of activities in a triangle formed by North Yorkshire (United Kingdom), Franche-Comté (France) and Hamburg (Germany). It also discusses areas suffering from serious geographical or natural handicaps and that the ESPON programme should bring together results which could provide a basis for the proposals on the territorial dimension of cohesion which it intends to make in the Third Cohesion Report.

#### **g. Second Report on Economic and Social Cohesion**

The Second Report on Economic and Social Cohesion, “Unity, Solidarity, Diversity for Europe, its People and its Territory”, represents the very first analysis of the situation in the present member states and regions (2001) in relation to economic and social cohesion and how this can be expected to change after enlargement. It also represents a solid basis for discussing the form which regional policy will take in an enlarged Union.

It is argued that cohesion policy has 3 principles, as follows:

1. It retains credibility with the appropriate means at its disposal for tackling the unprecedented scale of the challenges which it will face;

2. It becomes more visible, that it brings home to citizens in the larger Union the meaning of cohesion while meeting their expectations, directly or indirectly;
3. The policy is pursued with a clearer vision than in the past of the diversity of the different parts of Europe and their different needs.

The report, as the others do, provides an analysis of the situation and trends in the EU, with respect to the economic and social cohesion. It reports that the territorial dimension is characterised by persistent imbalances and that spatial disparities in the Union reflect a more complex reality than indicated by differences in income and employment between regions. It states that for the Commission, and for the Member States, this was the rationale behind the ESDP, which was the first coherent effort to clarify the nature of the major territorial imbalances across the Union as a whole. These imbalances and the need to address them assume an added dimension with enlargement, if only because the land area of the Union will have doubled in relation to the early 1990s once the candidate countries have entered.

The report notes the high geographical concentration of activity in the Union, and that, for the EU, this concentration has negative implications not only for peripheral regions but also for the central regions themselves, particularly in terms of traffic congestion and pressure on the environment and wealth, which could in the long-term offset the apparent advantages. Furthermore, it reports that the concentration of population in central areas is reflected in a high degree of urbanisation and disproportionately large share of the highly skilled functions associated with the knowledge economy being located there with a net result of a level of productivity some 2.4 times higher than in peripheral areas. The report argues that the counterpart of this concentration is that the Union lacks the kind of polycentric pattern of activity which is undoubtedly a factor in the territorial cohesion of the US, in its less pronounced regional disparities in income and employment and perhaps in its competitiveness. The report states that pursuit of the ESDP objectives, and the general aim of achieving coherent and sustainable spatial development, underlies cross-border, trans-national and trans-regional cooperation, financed by the ERDF.

The report also analyses the contribution of community policies to economic and social cohesion. Amongst others it notes that macroeconomic stability helps to achieve economic convergence and that the introduction of the euro makes differences more transparent and resources more mobile.

#### **h. Sixth Periodic Report on the Social and Economic Situation and Development of Regions in the European Union**

The report provides an analysis of the situation in the regions, a study of EU competitiveness, the role of EU structural actions and an analysis of the upcoming enlargement. It divides EU regions into (1) large urban service centres, regions which typically perform well in terms of both GDP and employment; (2) industrial regions, the economy of which tends to be centred on medium-sized cities, which are often part of a network; and (3) rural regions, with relatively high employment in agriculture. The report states that policy must be tailored to the different types of needs in different regions.

#### **i. First Cohesion Report**

Besides providing a situation analysis, the First Cohesion Report considers the contribution of national and community policies to reducing gaps and hence to the promotion of convergence and cohesion. The First Cohesion Report states that the organisation of society in European countries reflects the value of the social market economy which seeks to combine a system of economic organisation based on market forces, freedom of opportunity and enterprise with a commitment to the values of internal solidarity and mutual support which ensures open access for all members of society to services of general benefit and

protection. It states that general aims such as solidarity and mutual support must be distilled into substantive and measurable, economic and social targets.

In its methodological approach to economic and social cohesion the report takes as its inspiration Article 130a of the Treaty on European Union, where it is set in terms of harmonious development, with a specific geographical dimension, reflecting an explicit recognition that wide disparities are intolerable in a community.

It is reported that imbalances do not just imply a poorer quality of life for the most disadvantaged regions and the lack of life-chances open to their citizens, but indicate an under-utilisation of human potential and a failure to take advantage of economic opportunities, which could benefit the Union as a whole.

So far as the geographical dimension is concerned, the reduction of disparities between Member States and regions is held, following the Commission's 1993 White paper on these themes, to mean convergence of basic incomes through higher GDP growth, of competitiveness and of employment.

Furthermore, the solidarity dimension is given practical effect through universal systems of social protection, regulation, to correct market failure and systems of social dialogue. It is outlined that cohesion is not to be confused with harmonisation or uniformity. Its sole aim is to achieve greater equality in economic and social opportunities. Cohesion and diversity are not conflicting objectives, but can be mutually reinforcing.

### **3.2 Commission Reports on Spatial Planning**

The European Commission has published two reports on spatial planning, namely the ESDP, which was mentioned earlier in this study, and a document on policies and spatial planning. Both will be briefly reviewed below, together with an interim territorial cohesion report.

#### **a. European Spatial Development Perspective (ESDP)**

The aim of spatial development policies is to work towards a balanced and sustainable development of the territory of the EU, namely to ensure that the three fundamental goals of European policy - (1) economic and social cohesion; (2) conservation and management of natural resources and the cultural heritage; and (3) more balanced competitiveness of the European territory – are achieved equally in all regions of the EU. By adopting the ESDP, the Member States and the Commission reached agreement on common objectives and concepts for the future development of the territory of the EU.

It starts off by stating that the characteristic territorial feature of the EU is its cultural variety, concentrated in a small area, which distinguishes it from other large economic zones of the world, and which must be retained in the face of European integration. It is stated that the ESDP provides the possibility of widening the horizon beyond purely sectoral policy measures, to focus on the overall situation of the European territory and also take into account the development opportunities which arise for individual regions.

The document also analyses the importance of EU policies with a spatial impact, where “spatial impact” or “regionally significant” means that Community measures modify the spatial structure and potentials in the economy and society thereby altering land use patterns and landscapes. The policies analysed are Community Competition Policy, Trans-European Networks (TEN), Environment Policy, Research and Technological Development (RTD), and Loan activities of the European Investment Bank.

The document outlines the spatial orientation of policies as follows:

- Development of a polycentric and balanced urban system and strengthening of the partnership between urban and rural areas;
- Promotion of integrated transport and communication concepts, which support the polycentric development of the EU territory;
- Development and conservation of the natural and cultural heritage through wise management.

It is also stated that with past enlargements and the prospect of future extensions, the EU is now of a size and diversity which demands a spatial development strategy. It is argued that, since the EU is becoming fully integrated in the global economy, the concept of polycentric development needs to be pursued, to ensure regionally balanced development. It identifies the pentagon defined by the metropolises of London, Paris, Milan, Munich and Hamburg, as the only outstanding larger geographical zone of global economic integration. It is stressed that a strategy for spatial development is necessary in view of the enlargement of the EU, as a further concentration of spatial development in just one single globally outstanding dynamic integration zone would not lead to a reduction of the disparities between the central part and a larger periphery.

It thus puts forwards the following policy options: (1) strengthening of several larger zones of global economic integration in the EU; (2) strengthening a polycentric and more balanced system of metropolitan regions, city clusters and city networks; (3) promoting integrated spatial development strategies for city clusters in individual member states; (4) strengthening cooperation on particular topics in the field of spatial development; and (5) promoting cooperation at regional, cross-border and national level. The report also analyses and presents policy options for dynamic, attractive and competitive cities and urbanised regions; indigenous development, diverse and productivity rural areas; and urban-rural partnerships.

Regarding parity of access to infrastructure and knowledge, the report presents an integrated approach for improved transport links and access to knowledge and presents a polycentric model as a basis for better accessibility. The report also discusses cultural heritage in detail.

Regarding polycentrism the ESDP has stimulated a rich debate. However, the spatial narrative introduced was limited to the definition of new territorial developments based on a new urban-rural relationship driven by the rationale of economic growth, globalisation and competitiveness as the preconditions for sustainable and balanced development.

The new language that is developed with the ESDP of polycentricity, efficiency and accessibility framed in the rhetoric of “growth-ecology-equity” (the ESDP triangle) is not coherent since the uncertainties about uneven development have not been resolved, and instead of attempting “to create a golden policy triangle of growth-ecology-equity, the economic imperatives of the single market and monetary union prevail in the policy options and measures which are set out within the document”.

In the ESDP the concept of polycentrism has been reduced to a new urban-rural relationship (functional to urban areas) and that the diversity that characterizes Europe is positive but should not represent a “burden” for the process towards global competition. This approach is clearly stated in the Territorial Agenda (2007): “Some of these diversities are positive assets which can be capitalised and which can contribute to making Europe the most competitive territory in the world. Other diversities take the form of disparities which challenge, and in some cases put at risk, European cohesion and integration. The European diversity can be discussed at many different geographical levels reaching from general appreciations such as core-periphery, North-South or East-West to more detailed insights such as functionality of urban regions, urban-rural relations or low and high population density, accessibility and hazard risks, and cross-border territories”.

The ESDP, but also in many documents that were inspired by it, have been adamant on the importance of polycentric, balanced and sustainable development for the internal cohesion of the EU, while having sacrificed the tantamount importance of polycentric, balanced and sustainable development for the regions and countries outside the European *acquis*. Internally the EU has opted for a combination of solidaristic principles and neoliberal principles, while in the relationship with Third countries the prevailing discourse of the ESDP strongly leans towards the neoliberal model. These contradictions and juxtapositions between the neoliberal model and the solidaristic economy model that the ESDP has raised, and that have characterised the documents of the EU territorial and spatial development, contributed to feed suspicions in Third countries towards EU international cooperation and development aid and EU economic cooperation instruments.

Consequently, during the period since 1999, the EU has swayed back and forth between a neoliberal model to a solidaristic economy model in a problematic attempt to combine social justice and territorial cohesion with privatisation, deregulation and liberalisation policies. This juxtaposition is even clearer when looking at the external dimension of EU policies. While for the internal dimension the concept of cohesion was transformed into a policy goal, Third countries were mainly considered as a market for exporting local productions and increasing European firms' competitiveness. A clear example of this ambiguity is the European documents' lacking debate on whether EU firms should be responsible towards the stakeholders not only in Europe but also in the Third countries in which they operate.

#### **b. Community Policies and Spatial Planning**

This report seeks to highlight the importance of the territorial dimension in the implementation of Community policies. It is drafted within the framework of reflection on the first draft of the ESDP and forms part of the initiative to examine the future implications of territorial issues at European level.

The report states that an analysis of Community policies reveals a plurality of territorial concepts of a very different nature, which can be grouped in various categories, namely:

- (1) Delimitation of areas eligible for financial support and modulation of assistance rates;
- (2) Improvement of basic infrastructures;
- (3) Differentiation of policies and measures on the basis of specific territorial criteria;
- (4) Development of functional synergies;
- (5) Design of integrated approaches.

The report sets out the background to the debate on European spatial planning, and tries to assess the initial political implications of such an exercise. It also presents in a more detailed manner the ways in which various Community policies impact on the spatial development of the EU.

#### **c. Interim Territorial Cohesion Report**

This report summarises the first results of the studies on territorial and urban development initiated by ESPON and the European Commission's Directorate-General for Regional Policy.

The report analyses the Union's territory against the background of enlargement, looking at the main imbalances (population distribution, relative wealth and permanent handicaps) at appropriate levels of analysis and with a view to polycentric development.

The report defines territorial cohesion as the balanced distribution of human activities across the Union and states that this is complementary to economic and social cohesion, and that it translates the goal of sustainable and balanced development assigned to the Union (Article 2 of the Treaty) into territorial terms. It states that territorial cohesion includes fair access for citizens and economic operators to Services of General Economic Interest (SGEI), irrespective of the territory to which they belong (Article 16 of the Treaty).

The report makes references to the objectives of the ESDP and that one of its guidelines is the promotion of polycentrism in the European Union, which at Community level means establishing development centres which are an alternative to the pentagon, which was described earlier, and at national and regional levels, means the promotion of complementary and interdependent networks of towns as alternatives to the large metropolises or capital cities, and of small and medium-sized towns which can help integrate the countryside.

The report also analyses how territories rank in terms of factors of competitiveness by looking at the situations regarding research and innovation and access to transport, ICT and energy networks, since these determine the territorial imbalances identified in the previous section. At the same time, it looks at the main ways the Union provides assistance in those fields, both in terms of sectoral policies and through regional policy and the Structural Funds.

The report states that the aim of territorial cohesion presupposes the establishment of cooperation in both horizontal terms (between policies) and vertical terms (between operators and authorities at different geographical levels). It also argues that the Structural Funds should concentrate on a number of areas of assistance to promote territorial cohesion and improve regional competitiveness, while improving access to outlying and rural areas and those which are thinly populated.

### **3.3 Territorial Agenda of the EU and Related Documents**

#### **a. Territorial Agenda of the EU**

At an Informal Ministerial conference held in Leipzig on 24 and 25 May 2007, within the framework of the German EU (European Union) Council Presidency, ministers responsible for Spatial Development in EU Member States agreed on the so-called “Territorial Agenda of the European Union: Towards a More Competitive and Sustainable Europe of Diverse Regions”.

The document, which is based on the notion that Europe's competitiveness in the world will additionally be strengthened by utilising its territorial diversity in a better and more innovative way, aims at mobilising the potentials of European regions and cities for sustainable economic growth and more jobs. It supports both the Lisbon and Gothenburg Strategies of the European Council.

The document promotes a polycentric territorial development of the EU, with a view to making better use of available resources in European regions, in order to secure better living conditions and quality of life with equal opportunities, oriented towards regional and local potentials, in the European core area as well as in the periphery. For this reason, there is a need for the territorial dimension to play a stronger role in future Cohesion Policy. The report states that territorial cohesion can only be achieved through an intensive and continuous dialogue between all stakeholders of territorial development, a process of cooperation termed as “territorial governance”.

The document identifies a number of new territorial challenges, including regional diverse impacts of climate change on the EU territory and its neighbours; challenges with respect to energy; accelerating

integration of regions in global economic competition; impacts of EU enlargement on economic, social and territorial cohesion; overexploitation of the ecological and cultural resources and loss of biodiversity; territorial effects of demographic change as well as in and out migration and internal migration on labour markets, on the supply of public services of general interest as well as the housing market, the development of the settlement structure and how people live together in cities and regions. Given these challenges, it is argued that territorial cohesion of the EU is a prerequisite for achieving sustainable economic growth and implementing social and economic cohesion.

The Territorial Agenda builds on the three main aims of the ESDP, as well as on the CEMAT Guiding Principles for Sustainable Spatial Development of the European Continent. Furthermore, the Leipzig Charter on Sustainable European Cities complements the concern of the Territorial Agenda.

The report lists and analyses a number of priorities for territorial development in the EU, namely: strengthening polycentric development and innovation through networking of city regions and cities; the need for new forms of partnership and territorial governance between rural and urban areas; the promotion of regional clusters of competition and innovation in Europe; the strengthening and extension of trans-European networks; the promotion of trans-European risk management including the impacts of climate change; and the strengthening of ecological structures and cultural resources as the added value for development. Finally the reports considers actions by European institutions; actions for close cooperation between the European Commission and EU Member States; actions for strengthening territorial cohesion in EU Member States; and Joint Actions by Ministers, to be important and are recommended for implementation between 2007 and 2011.

#### **b. The Territorial State and Perspectives of the European Union**

This report is the background document for the Territorial Agenda of the EU. It starts off by stating that territorial development is a major factor in solving the different challenges being faced by the regions and cities of Europe, and that the key issue is to extend the Lisbon Strategy to include the territorial dimension. Territorial development policies are able to considerably contribute to sustainable growth, innovation and jobs as well as to social and ecological development.

It is concluded that the implementation of a more territorially oriented development approach for the regions and cities of the EU will not be successful unless territorially significant aspects inform the shaping and application of national and European sector and economic policies. In order to achieve a more coherent territorial development approach there is a need to learn more about the specific characteristics and major challenges of the European territory. The report notes that from a European perspective, the territory still shows a core-periphery orientation. Also, mainly due to EU enlargement, disparities highly increased, and although the new EU Member States are catching up in a number of fields, they still face severe problems meeting the challenges ahead.

It is also reported that policy at EU level has so far exhibited significant incoherence with regard to its territorial impact. Also, although EU Cohesion Policy has the greatest direct and indirect impact on territorial development through its pro rata funding and support to regional development, it is still being implemented too much according to standardised procedures and without taking distinctive regional features into account.



### **c. Conclusions of the German EU Council Presidency on the Informal Ministerial Meeting on Urban Development and Territorial Cohesion**

The Ministers expressed their firm conviction that an integrated urban and spatial planning and development policy is needed in order to make an important contribution to improving the situation of European citizens and businesses in their immediate social, cultural, environmental and economic surroundings. They thus, reaffirmed their will to support steps to take the territorial and urban dimension into account when policies are being drawn up at Community, national, regional and local levels, and agreed that their informal cooperation should contribute to identify and mobilise the diverse potentials of all cities and regions in Europe to promote sustainable economic growth and the creation of new jobs as well as to contribute to social and environmental development and thus help to achieve the objectives laid down in the Lisbon and Gothenburg Strategies.

Pursuing these aims, the Ministers agreed upon the Leipzig Charter on Sustainable European Cities and the Territorial Agenda of the EU, while also address various other far-reaching policy issues, such as those related to national urban development and housing policies, sustainable urban development, urban and territorial networks to exchange experience, learning and skills and generation of new knowledge, new funding instruments and the planned Green Paper on Urban Transport.

The Ministers also took note of the results of the territorial cooperation and of ESPON 2006 in the 2000-2006 structural funds period and agreed to support and make use of ESPON 2013 and the new Objective 3 instrument – European Territorial Cooperation – for implementing the EU Territorial Agenda and the Leipzig Charter.

### **d. European Conference of Ministers Responsible for Spatial/Regional Planning (CEMAT) Resolution Number 3**

Resolution Number 3 records that the Ministers responsible for Spatial/Regional Planning of the member States of the Council of Europe, took note of the Territorial Agenda of the EU and considered the significance of the EU Territorial Agenda as a strategic framework for the territorial development of European regions. They also considered that the aim of strengthening the global competitiveness of all regions of Europe applies equally to EU and non-EU Member States and that CEMAT is the only European forum uniting EU and non-EU Member States with the aim of sustainable spatial and socio-economic development of the European Continent.

### **e. A Territorial Agenda for Europe – Looking ahead to the German Presidency**

The ambiguity present in the ESDP is reaffirmed in the very recent document for a Territorial Agenda for 2007-2010. The European Commission reaffirms the principle of convergence between lagging and advanced regions in Europe, and emphasizes the goal to make Europe the most competitive macro-region of the world. In this document, which builds on the ESDP idea of sustainable, balanced and polycentric development, the challenges for the European periphery (old and new) remain unchanged. The concept of competitiveness becomes a policy goal while cohesion and polycentrism become a means to achieve it in an odd attempt to turn ends and means upside down and establish a mind-set to which any opposition is considered politically incorrect. It is rather odd that, despite the warnings coming from different indicators and forecast scenarios on European territorial development, the EU maintains the neoclassic idea of convergence and competitiveness at its economic policy core and uses cohesion policies and discourse as a moderating factor.

The contribution of the report is the definition of territorial capital as citizens, businesses and their employees. It notes that policy-makers must focus more on territorial capital and that by activating and harnessing the economic potential available, an important contribution can be made to boosting growth and employment. The article states that by focusing attention on spatial development and urban development in Europe, two policy areas which are important for European integration are being coordinated.

It states that there is still too little awareness of the importance of European policies for growth and employment, for social and regional cohesion and for a successful concerted approach to global competition. Thus, European policies must be clearly visible in regional development and urban policies and vice versa. The article makes reference to Jeremy Rifkin's book "The European Dream", which draws attention to the close cooperation within the EU on territorial issues as a model to emulate. He stresses the importance of the voluntary cooperation among European cities and regions across national borders in developing strategic regional development perspectives. He states that this approach, in this form, is not found anywhere else in the world. The article concludes that the crucial factor in gaining acceptance for the Territorial Agenda is stakeholder dialogue.

#### **f. The Lisbon Strategy and Territorial Cohesion: Towards a new kind of European Governance**

This article states that following the two "no" votes in France and the Netherlands, many thought that until the Constitutional Treaty entered into force, territorial cohesion would remain a possibility rather than becoming an obligation. Indeed, the budget that was initially assigned to territorial cooperation for the period 2007-2013 was cut by almost 50%, despite this being the instrument *par excellence* for supporting territorial cohesion.

It is stated that regional policy has become the main instrument of the new cycle of governance of the revised Lisbon strategy. It is reported that the Committee of the Regions held the first *Territorial Dialogue for Lisbon* this year, and set up, on a voluntary basis, a network of regions and local authorities so as to monitor in detail, the progress made in terms of consultation and implementation of the Lisbon Strategy. 113 authorities from almost all the Member have asked to join the network, with the response being particularly high in the Netherlands, Sweden, Italy and the United Kingdom. The article notes that under the reformed cohesion policy, the Committee of the Regions will pay ongoing attention to the governance of the structural funds.

It is stated that the territorial dimension of cohesion policy is fundamental to the Committee of the Regions and it has pressed the European Commission very hard to give a legal value to territorial cohesion. Indeed, the Committee's representative at the Convention actively worked towards the recognition of this third dimension of cohesion in the Constitutional Treaty.

As far as the Committee of the Regions is concerned, territorial cohesion is a horizontal priority and it goes well beyond identifying areas with strategic handicaps that require special treatment, such as the outermost regions, islands, external borders, upland areas, areas of low population density, arctic regions, etc. As well as these objective geographical factors, the concept of territorial cohesion takes in dimensions of sustainability and solidarity. It forms part of the pursuit of a long-term objective for Europe: balanced and sustainable development.

It is also noted that at a time when there are more and more projects to modernise or build communication infrastructure aimed at facilitating trade between old and new Member States, it seems more necessary than ever to put the idea of polycentrism back on the Agenda. It is imperative that policies do not exacerbate the concentration of wealth in a few regions.

It is argued that the issue that is becoming increasingly urgent is that of cities' relationship with their immediate surroundings, and in particular the countryside. European spatial development is characterised by the pursuit of urbanisation and by the dispersed expansion of cities into the countryside, known as "rurbanisation", and thus it would be helpful if Community cohesion and rural development policies were more joined up.

The document states that the ESDP must be strongly reaffirmed and the call of the ESDP must be accompanied by a clear and unambiguous call for the identity of rural territories and a better partnership between cities and their surrounding areas, a concern which leads one to rethink the subsidiarity principle in more cooperative terms. This is a hot debate that needs to be launched at European level and a key aspect of the concept of territorial cohesion.

The report also notes that the concept of territorial cohesion introduces a new dimension of solidarity: that of solidarity between territories. It observes that globalisation and the single market are causing increasing territorial divisions between areas that are successfully integrating themselves into the global economy and those that are unable to do so.

As in other documents, there is mention of the fact that territorial cohesion constitutes the third dimension of cohesion, which seeks to address the largest gaps whilst taking into account territorial and regional diversity. It also reports that it is in territorial cooperation and all its aspects that the link between the imperatives of cohesion and the Lisbon objectives is best expressed.

It is also reported that a new legal instrument is to be created entitled "European grouping for territorial cooperation", but that an appropriate level of resources is necessary for success.

Michel Delebarre, President of the Committee of the Regions concludes: "In a few years' time, I would like to see the three dimensions of cohesion – economic, social and territorial – becoming objectives of the Lisbon strategy. In other words, I would like our 25 heads of state to agree to 'make Europe the most competitive, dynamic and cohesive knowledge-based economy in the world'".

#### **g. Bringing Europe together: Transnational cooperation of cities and regions**

Spatial development is a major component of European policy for sustainable growth and employment. If the EU's major objectives in the key spheres of the economy, social affairs and the environment are to be achieved, regional differences have to be taken into account and all stakeholders, especially the regions, cities and municipalities, have to be included in the process to an even greater extent. Intensive territorial, economic and social cooperation in joint European projects, financed by ERDF funds, is designed to achieve greater spatial integration and competitiveness in the regions involved.

The report looks at the outcomes, impacts and benefits of the transnational programmes and projects. Analysing several hundred projects, it illustrates the contribution made by transnational collaborative schemes towards the implementation of European spatial development policy. In addition, the report examines the extent to which transnational spatial development projects have already taken up the priorities of the Territorial Agenda. It is reported that transnational project work in Europe contains great potential for territorial development and is proving to be an important instrument for realising the Territorial Agenda. The integrative approach to spatial development distinguishes transnational cooperation from cross-border and interregional cooperative projects, both in terms of subject matter and spatially. Because of the increased European competence that regions, cities and municipalities gain by

being included in European projects and this can make a major contribution to improving their economic opportunities and their competitiveness.

The report quotes Michel Debarre, President of the Committee of the Regions, 2006: "...the concept of territorial cohesion introduces, above all else, a new dimension of solidarity: that of solidarity between territories. Year after year, the Commission notes in its cohesion report that the per capita income gaps between Member States are decreasing, whilst those between regions within Member States are increasing".

The report notes that INTERREG programmes give priority to spatial development over spatial planning and that new challenges confirm yet again that European spatial development is a politically charged issue that needs to be addressed.

Also noted is that increased global competition and new challenges in connection with the EU's eastward expansion, migration, growing disparities and demographic shifts underline the necessity of an integrated European spatial development and that it therefore makes sense, at the transition to the next programming phase of Structural Funding (2007-2013), to emphasize and update the objectives of the ESDP. It is argued that the Territorial Agenda outlines possible actions and approaches in order to synchronise the objectives and political options of the ESDP with the Lisbon and Gothenburg Strategies and that in this way, the territorial dimension is given a new weight, as it is integrated with different policies at European and national levels. Furthermore, it states that the territorial dimension emphasizes the "principle of countervailing influence" on the assumption that dynamic and sustainable development in Europe depends to a significant degree on the extent to which European policies are harmonised with the development of European cities and regions. However, an important prerequisite is the establishment and stabilisation of governance structures in order to ensure the vertical and horizontal coherence of different, territorially effective policies.

The report also introduces the notion of territorial capital, which refers to the individual talents and potential of each region and its inhabitants. In this regard, it quotes Wolfgang Tiefensee, German Federal Minister for Transport, Building and Urban Affairs, 2006: "Policy has to focus a lot more on 'territorial capital', that is, the people living in those regions, the companies and the natives and foreigners who generate the national product. We have to look at specific living conditions".

Based on the analysis of hundreds of INTERREG projects, the report concludes that INTERREG projects strengthen the regions and promote European networking as well as linking the EU to its neighbours. They provide answers to key questions in spatial development, while help build Europe "from the bottom up". INTERREG projects have regional and transnational effects, such as preparing investments for Europe; integrating sectoral policies and facts relating to spatial monitoring; creating transnational learning processes and solutions, which "Europeanise" projects and actors; provide impetus for politics and planning; create new partnerships and networks; and also doing good. Their contributions to a future-oriented European spatial development include: driving urban development; redefining urban-rural partnerships; promoting regional innovation processes; connecting trans-European technology networks and regional development; and utilising regional resources such as natural and cultural heritage.

### **3.4 Research Documents and Working Papers**

Territorial cohesion has been extensively researched by academics. Indeed, there are numerous articles on the subject, and these have been increasing in recent years, with the shift in focus from spatial development to territorial cohesion.

### **a. Effectiveness of the ESDP**

The effectiveness of the ESDP, the main EU document on spatial development, which has been described in some detail earlier, was limited, possibly due to the fact that it had been finally approved only with the status of a non-binding policy framework for EU and national policies. This implied that the themes of the ESDP were taken into account in the previous Objective 1 and 2 programmes only insofar as they coincided with autonomous regional or national strategic preferences and objectives (Polverari *et al.*, 2005).

Kunzmann (2004) hints that despite the positive side of the ESDP in endorsing concepts such as balanced competitiveness and sustainable development, it may be, what he terms as a “vine leaf”, to cover the negative externalities of neo-liberal economic policies. William (2006) agrees to this, and adds that despite the publication of the ESDP, endorsing the notion of polycentric development of the EU territory as the desirable guiding hand at the European spatial tiller, the question Kunzmann posed in the early 1990s - “is there any hope of maintaining and promoting spatial equity in Europe, beyond ideology, beyond political rhetoric, and beyond the cohesion fund?” - remains just as valid.

In recent years, there has been a shift in focus from the narrow view of spatial development to the broader view of territorial cohesion. Territorial cohesion allows for a more effective way of integrating different agendas (economic, environmental, cultural, social and policy) and it allows the translation of territorial development into specific investment programmes (Albrechts *et al.*, 2003; Wilkinson *et al.*, 1999).

Nonetheless, even the recent contributions to spatial development departing from the ESDP principles of polycentric and balanced development have maintained a clear separation between the internal from the external EU dimension envisaged in the co-operation and co-development with third countries. This approach represents a strong obstacle towards the understanding of a polycentric development policy that includes third countries, especially those in the neighbouring areas (Capecci and Gallina, 2007).

The document of a number of experts of the Spatial and Urban Development working group prepared in view of the Third Cohesion Report (2003) confirms that the concept of polycentric development applies at different territorial scales: European/global, national/transnational, and regional/local, but that the focus has so far been on the European scale.<sup>18</sup> Similar conclusions are reached by the Thiemo W. Eser, who states that in the wake of globalisation, polycentrism has to be also viewed in an international context and that the development of particular cross-border polycentrism patterns is producing an added value that should be better explored.<sup>19</sup> However, despite acknowledging the need of a multilevel and international approach, from a policy perspective, the ESDP and the research that has followed remains ineffective in integrating the EU internal dimension and strategy of polycentrism with the external one.

### **b. Territorial Cohesion and Quality of Life**

Polverari *et al.* (2005) note that a general agreement on an operational definition of the concept of territorial cohesion was not reached at Rotterdam, but Ministers concurred on the need to focus their work on territorial cohesion until 2007. The EU constitution refers to territorial cohesion as a concern for the regions facing economic weaknesses or specific handicaps, such as islands, mountainous areas or peripheral zones. However, as mentioned earlier, an official EU definition of the term territorial cohesion has been elusive. The Dutch Presidency, in their preparatory document for the Rotterdam Council of

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<sup>18</sup> Expert Document (2003) Managing the Territorial Dimension of EU Policies After Enlargement, unpublished paper, p. 23.

<sup>19</sup> T. W. Eser (2006) The ESPON 2006 Programme: Selected Findings on Polycentrism in Europe, Paper prepared for the 10<sup>th</sup> Conference on Urban and Regional research by the Committee on Human Settlement of the United Nations together with the Council of Europe's European Conference of Ministers responsible for regional Planning (CEMAT) 22-23 May 2006, Bratislava.

Ministers argued for the need to come “to come to a general agreement on what it [Territorial Cohesion] will mean in terms of implementation”.

The Committees on Spatial Development, held in the early 1990s discussed the three ESDP fundamental goals, its three main fundamental development guidelines, and the economic, social and environmental dimensions of sustainability. The latter is also referred to by Camagni (2006), who refers to the territorial dimension of sustainability integrating economic, social and environmental objectives. This is similar to the view adopted by Stojkov (2007), who argues that territorial cohesion refers to the potency of a territory to enhance its social quality, compete in the interregional and intraregional market and act sustainably. This implies the essential need for territorial efficiency and territorial quality, also advocated by Camagni (2006). Territorial efficiency implies efficient and polycentric urban systems; interregional integration; resource efficiency; general accessibility; infrastructure endowment; competitiveness of production systems; sustainable transport; development of city networks; and reduction of risks. Meanwhile, territorial quality implies reduction of interregional income disparities; conservation and creative management of natural resources; access to services of public interest; quality of life and working conditions; quality of transport and communications; reduction of poverty and exclusion.

Hamez (2005) argues that territorial cohesion can be represented in a hypercube, which summarises its broader definition and provides a potential basis for its operationalisation. It is a concept that combines several dimensions, including:

1. A multi-sectoral dimension: in terms of the promotion of not just economic cohesion but also social and environmental;
2. A territorial dimension: in terms of different spatial levels from the EU to the local level and concerning both disparities and accessibility to services;
3. A temporal dimension: in terms of a concern not just with present disparities but also the likely changing relative situation.

Territorial cohesion can be seen as an umbrella concept and an integrated part of the cohesion process, covering the territorial dimension of social and economic cohesion.<sup>20</sup> Territorial cohesion is both the cohesion of part of a territory to the whole and the internal cohesiveness within a territory, underlining the need for policies that take into account both objectives (within a territory and as part of the whole EU territory).

According to Schön, territorial cohesion aims to strengthen endogenous potential in territories so as to overcome imbalances between territories. Thus, territorial cohesion is linked to the ideas of equality and balance but also with that of increasing territorial capital and potential. However, it is also important to underline that equality is not sufficient as a policy aim and that the quality and nature of those living in a specific territory should be considered as the central aim of territorial cohesion.<sup>21</sup>

Therefore, the central issue of the ESDP, that of reconciling equity (cohesion) with competitiveness (territorial capital development) is raised again and the proposed solution is to further develop the polycentric structure of the European territory, develop a better and more balanced accessibility to the European regions and the preservation and better management of the natural and cultural heritage of Europe and its regions.

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<sup>20</sup> Expert Document (2003) Managing the Territorial Dimension of EU Policies After Enlargement, unpublished paper, p. 19.

<sup>21</sup> Schön P. (2005) Territorial Cohesion in Europe?, *Planning Theory & Practice*, Vol. 6, No. 3, 389-400, September 2005.

### **c. Territorial Cohesion and Polycentric Development**

Polverari *et al.* (2005) regard the concept of polycentric development as a by-product of a new concept of the role of cities as engines for growth – alongside with the need for a more uniform distribution of such engines across the European territory. They argue that the concept of polycentric development interprets the role of cities in relational terms, transcending the role of individual cities (e.g. their functional specialisation and/or their catchment/influence sphere) and advocating the possibility of creating synergies and networks between them, to strengthen the overall competitiveness of ‘polycentric regions’. The concept of polycentric spatial development has been described as a ‘bridging concept’ between two policy aims encompassed in the ESDP that are not always congruent: ‘economic growth’ and ‘balanced development’ (Nordregio *et al.*, 2003).

Similar conclusions can be found in the expert document prepared in view of the Third Cohesion Report which adds emphasis on the role of towns and cities in the context of regional development. The branding of urban and regional identities can be a factor promoting growth while contributing to spur localized social and human capital development.

### **d. Policy Implications of Territorial Cohesion**

Territorial cohesion implies a balanced distribution of human activities within a territory and the use of policies that enable cities and regions to exploit their potentials more effectively. Polverari *et al.* (2005) argue that the introduction of the concept of territorial cohesion into the understanding of EU regional policy, in policy terms implies shifting efforts from “reactive measures”, those tackling the improvement of the social, economic and environmental situation of the cities, to more “proactive” measures, aiming at creating the conditions for the full exploitation of the cities’ true economic potential. More specifically, “reactive” measures include tackling poverty and deprivation, thus ensuring balanced development of cities, while “proactive” measures include improving the business environment and support for businesses and information technologies. They argue that the “reactive” approach to urban development is underplayed by programming documents, not least due to the lack of financial resources available, but also for a general tendency to favour the goal of national growth over the reduction of intra-national inequalities.

Douchet (2006) refers to two main camps on territorial cohesion, what he terms “protector knights” and “mystical knights”. He used the term “protector knights” to refer to those who convey a neo-corporatist and confrontational approach to territorial cohesion, but who weave close ties with field practitioners and regional politicians. “Mystical knights”, on the other hand, were well inspired to seize the opportunity of the ESDP process to try and define a new spatial planning paradigm based on integrated territorial strategies and genuine cooperation. He strongly argues that reducing EU territorial cohesion and territorial cooperation in particular to increased competition between sectional interest groups for structural funding would be last straw for a policy precisely meant to offset the shortcomings of the “competitive Europe”. He states that, the opposite scenario, that of an intensively cooperative Europe, is much more desirable, as it would give a new impetus to EU integration, not as an abstract ideal, but as the best way to pursue the common good of all EU citizens.

The concept of polycentricity used in the ESDP aims to overcome the concentration of resources in the Pentagon and support the development of other territories that can compete on the global markets. A more sophisticated view of polycentric development attempts to integrate the notion of territorial cohesion besides that of social and economic cohesion possibly projected inside as well as outside the territories of the EU, which implies from a policy perspective that the goal of creating territories able to compete on a global scale is subdued to that of make accessible to all the population services of general interests and

improve the quality of life of all. In the paper by Schön on territorial cohesion in Europe, the analytical framework remains constrained by a convergence hypothesis.<sup>22</sup>

#### **e. The Future of Territorial Cohesion: Territorial Capital?**

Academic research and policy documentation suggest that regional policies in the Member States are gradually moving from a redistributive to an endogenous growth approach, based on the mobilisation of local assets, in line with theories such as the ‘new economic geography’ and ‘new regionalism’ (Bachtler *et al.*, 2002). According to these new theories, it is the stock of regional ‘capital’ and ‘potential’ which is crucial for the regions’ competitive advantage. Polverari *et al.* (2005) argue that placing emphasis on the ‘territorial capital’ of the region implies: shifting policy from equity alone to equity and efficiency at the same time; favouring supply-side instruments and bottom-up local economic development initiatives; achieving a stronger spatial but also thematic and sectoral targeting of resources; reducing the use of aids to businesses in favour of interventions in the ‘context for business’; and multi-annual/longer-term strategies. Furthermore, Polverari *et al.* (2005) state that in territorial terms, this implies placing more emphasis on local assets and potential rather than areas of need, in short what is called ‘territorial capital’.

Local competitiveness can be reached by developing social capital and trust rather than pure availability of capital, by enhancing creativity rather than the pure presence of skilled labour and by improving connectivity and relationality rather than pure accessibility, and finally by introducing measures reinforcing local identities, local efficiency and quality of life.

The cognitive approach underpinning the concept of territorial capital finds its support in the industrial dynamics literature, the institutional approach and the Italian industrial districts and French innovative milieu approaches.<sup>23</sup> However, the concept of ‘territorial capital’ was first proposed not in the scientific literature but in a regional policy context, and more precisely by the OECD in its *Territorial Outlook* (OECD, 2001) and it has been reiterated by the DG Regio of the European Commission (EC, 2005) in the documents on the Territorial State and Perspective of the EU.

According to the OECD territorial capital is determined by a series of material and immaterial factors: “These factors may include the area’s geographical location, size, factors of production endowment, climate, traditions, natural resources, quality of life or the agglomeration economies provided by its cities, but may also include its business incubators and industrial districts or other business networks that reduce transaction costs. Other factors may be ‘untraded interdependencies’ such as understandings, customs and informal rules that enable economic actors to work together under conditions of uncertainty, or the solidarity, mutual assistance and co-opting of ideas that often develop in clusters of small and medium-sized enterprises working in the same sector (social capital). Lastly, according to Marshall, there is an intangible factor, ‘something in the air’, called the ‘environment’ and which is the outcome of a combination of institutions, rules, practices, producers, researchers and policy makers that make a certain creativity and innovation possible” (OECD, 2001, p. 15).

Camagni underlines the need to have a closer inspection to the concept of territorial capital proposed by the OECD since some of the factors listed above belong to the same abstract factor class while other factors are lacking. Also, whether the notion of capital can be applied to many of these factors is questionable because they do not imply an investment, as asset or a production factor expressed in quantitative forms (Camagni, 2007).

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<sup>22</sup> Schön P., 2005, *op. cit.*, p. 394.

<sup>23</sup> For a review of the literature on these approaches see R. Camagni (2007) Towards a Concept of Territorial Capital, unpublished paper.



Therefore, he proposes a matrix built upon two dimensions (rivalry and materiality) and containing all potential sources of territorial capital. These taxonomies include pure public and private goods, human capital, social capital and a set of intermediate class of club-good or impure public goods which implies, or requires, strong relationality. Though theoretically sound and exhaustive, the factors in this taxonomy are not directly measurable.

In the interpretation of Governa *et al.* (2006) territorial capital is a relational and functional concept at the same composed of a set of factors that can be grouped as: *a)* natural features; *b)* material and immaterial heritage; *c)* fixed assets as infrastructures and facilities; *d)* relational goods as cognitive, social, cultural and institutional capital. Accordingly, the first three groups belong to a category that can be partly recognisable and directly accessible to external actors, whereas the elements in the fourth group has the role to organise and link together the formers and imply a local collective action and mediation that can create and increase them.<sup>24</sup>

By the same authors, the process through which territorial capital is developed in a non destructive way in order to improve territorial cohesion at different levels is referred to as *territorial governance*. Territorial governance should create the favourable conditions that allow territorial collective action to take place in order to improve competitiveness and reach territorial cohesion at different spatial scales.

## **4 SOCIO-ECONOMIC IMPORTANCE OF MEASURING TERRITORIAL COHESION**

### **4.1 The opportunities offered by the adhesion to a solidaristic economy model**

The combination of economic, social and territorial cohesion marks the hallmark of the European Social Model. This implies a rupture with the hypothesis of convergence and instead leads to the opening of other opportunities of spatial and economic development. From this perspective, polycentric development adheres to a solidaristic economic model.

Territorial cohesion reflects the spatial dimension of the cohesion process and polycentric development therefore also includes a spatial dimension – but not only. Polycentric development is not only about urban-rural relationships or the ranking of cities. Polycentric development implies a variable geometry of the territory and of the development models. It is based on the assumption that one solution does not fit all.

Furthermore, polycentric development cannot be considered only in relationship to the internal EU development dimensions, but also to the external one, i.e. the EU territory and its relationship with third countries. To analyse the issue of polycentric development one requires different levels of analysis and different variables.<sup>25</sup>

The adhesion to the principles of the solidaristic economic model, such as those set in the European Social Model, can lead to the set targets. For example, the reduction of inequalities within EU regions and

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<sup>24</sup> Governa F. and M. Santangelo (2006) Territorial Governance and Territorial Cohesion in the European Scenario, Paper presented at the International Conference “Shaping EU Regional Policy: Economic, Social and Political Pressures, 8-9 June 2006 Leuven.

<sup>25</sup> Capecchi V. and A. Gallina (2007a) Towards a Balanced Development in Europe: Experiences from the application of the ESPD, in A. Gallina and S. Villadsen (eds) *New Challenges and Opportunities for Local Development, Social Cohesion and Innovation*, Ed. It. Press, Catania.

between EU regions and regions in third countries cannot be dealt with in two different strategies. Otherwise, the cost in terms of political credibility would be too high. With this in mind, the underlying logic of the ESDP and the Territorial Agenda 2007-2010 should be radically modified.

Similarly important is the positive enhancement of the diversities between people together with positive enhancement of the diversities and protection of the environment. The theoretical contributions of the feminist movements, the ecological movements, intercultural movements, together with those movements dealing with handicaps and disabilities should be increasingly accounted for in the elaboration of polycentric development model. Within this complex framework, the intertwining between the contribution of people and the positive utilisation of natural and environmental resources should be analysed. Finally, to achieve these objectives it is fundamental to adopt participatory methods among local actors and stakeholders, a more responsible attitude of the enterprises towards the territory and action-research methodologies.

## **4.2 Developing composite indices for territorial cohesion**

Although as a concept and policy objective, territorial cohesion has gained importance in recent years, little progress has been made in terms of its measurement. Indeed, there is no recognized index or variables measuring territorial cohesion, unlike other concepts such as competitiveness, governance, etc. The Commission does not in any way hint at specific indicators for measuring territorial cohesion.

This lack of a universal measurement of territorial cohesion can render the notion problematic to a certain extent, for a number of reasons. First and foremost, the lack of a measurement makes it difficult to deal with territorial cohesion in an analytical way. It may also render it unclear about the kind of policies that have to be implemented to attain it.<sup>26</sup> Also, unless territorial cohesion can be measured and monitored on a regular basis, it will remain as Faludi (2004) argues a rather ambiguous concept. Indeed, although the Reports on Economic and Social Cohesion have references to territorial cohesion and what it means, they lack a precise definition of the notion. This definition is also missing from the ESDP. This has led to territorial cohesion being defined in different and sometimes conflicting terms. For instance, Camagni (2006) contends that territorial cohesion refers to the integration of territorial quality, territorial efficiency and territorial identity, while Dematteis and Janin (2006) argue that it refers to a proactive approach to the valorisation of regional and local resources.

ESPON, which was set up to support policy development and to build a European scientific community in the field of European territorial development has developed indicators, typologies, analyses, data, scenarios etc... in order to help integrate the territorial dimension into EU policy development. However,

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<sup>26</sup> It is argued that the availability of a measure of territorial cohesion will serve a number of functions; the main ones are listed as follows:

- To support decision making: Decision making by the government and other authorities should lead to action which is systematic and coherent and based on transparent information. The indicators may also be used to justify certain priorities for action.
- To set targets and establish standards: For example, goals can be measured and targets set with time standards.
- To disseminate information: Indicators can be used to make the public more aware of certain problems, and to give high profiles to certain trends which are considered mostly undesirable. In this regard, indicators can be used for communication and for altering stakeholders about issues, including dangers, failures and success stories.
- To focus the discussion: Indicators can help to develop a common language for discussion. Often one finds that persons engaged in debate go off at tangents because of lack of common definitions. Indicators could avoid this happening, and could help focus the discussion on matters directly relevant to the issue.
- To promote the idea of integrated action: Given that territorial cohesion is multifaceted, it is often counterproductive to take action in isolation from others. Very often statistical information is published on one aspect only without making any connection with any other aspects. The indicators could help to foster an awareness of these interconnections.
- To monitor and evaluate developments: Indicators are of utmost importance to assess whether a given policy or decision is yielding the desired results and to assess whether changes of direction are needed. In this way, decisions are not taken blindly or based only on hunches or feelings, but will be based on scientific information presented in indicator format.

an indicator to measure territorial cohesion has not been developed yet. It should be mentioned though that work is being undertaken under Project 3.2, under the title “The European Territorial Cohesion Index” (ETCI), which will be discussed in some detail below. There has also been an attempt by the University of Tor Vergata, which will also be reviewed below.

#### **a. ETCI – European Territorial Cohesion Index**

The main aim of the research on an ETCI was to develop a technical tool for the evaluation of scenarios. The initial idea was to develop a synthetic index which should take into account the three fundamental objectives of the ESDP: economic competitiveness, social cohesion and sustainable development. An index was needed to estimate trends both in the past and the future, more specifically for the period 1980 to 2030, thus the index needed to remain relatively simple.

Initial research focused on technical questions and the use of existing data from the statistical appendix of the second report on economic and social cohesion. It is reported that the first round of research produced interesting results from a methodological point of view, but also demonstrated that the construction of synthetic indexes introduces a contradiction between political significance and scientific quality, and that it was possible to introduce a strong manipulation in the results. This is a rather obvious statement and was reported above in the literature on composite indices. However, the ETCI was looked upon with suspicion in European debates, especially on the potential use of the index for operational policies. Indeed, the first round of research concluded that the initial objective of building a global synthetic index taking into account all the dimensions of European official documents was currently very complex because of the contradiction between some of these objectives, and because the decision of the definition of the nature of the indicators taken into account to build an operational ETCI should in principle belong to policy makers. It was thus decided to postpone the research on statistical and cartographic tools and to renounce to the purely deductive strategy that consists in basing the construction of the index on theoretical concepts before considering methodological tools and empirical applications. A more inductive strategy was also adopted, that is one focusing on the availability and quality of data which could be used for the development of an index taking into account various dimension of ESDP objectives, and trying to define the concept of territorial cohesion based on the third Cohesion report and other recent political documents. It was concluded that it was not currently possible to build any relevant index of territorial cohesion in the framework of ESPON and Eurostat databases. As expected, the report notes that only the economic dimensions appear to be well documented; very little information is available at regional level for the evaluation of environmental sustainability and practically nothing is available for social cohesion. Indeed out of 103 indicators in the list of indicators developed in the ESPON framework, only 4 could be considered social.

Research also attempted to focus on introducing important considerations of spatial analysis, namely the spatial analysis of heterogeneity. This includes comparing the global level of heterogeneity with the local level of heterogeneity, in order to propose a measure of spatial autocorrelation. However, the conclusion of the research was very pessimistic, in that it was concluded that the current statistical situation of the EU in general, it was impossible to build any relevant index of territorial cohesion at regional level which could combine the three dimensions of the ESDP. Four options were proposed to break this vicious circle, namely: (1) asking Eurostat or ESPON to elaborate new data collection in the future; (2) using long term series available at national level for regional estimations; (3) trying to estimate target phenomena with proxy variables available at NUTS 2; (4) case studies for validation of estimations and in depth analysis. The research on the ETCI was therefore abandoned and work on an index of sustainable demographic development was instead taken up, which is a combination of life expectancy at birth (positive component) and median age (negative component).

One of the leading researchers in this project in a recent commentary stated that the availability of data is a major constraint on the development of the ETCI. Only very limited data exist at regional level (NUTS 3) and that which exists mainly focuses on economic concerns. The environmental side is far less well represented and the situation is even worse in relation to social data. Therefore, for him and other ESPON projects researchers, there is still a need to develop new indicators for territorial cohesion but there is a real danger, given the shortage of data, that focus will be placed on economic cohesion instead of territorial cohesion.<sup>27</sup>

#### **b. CEIS (University of Tor Vergata) Study on Territorial Cohesion Indicators**

This research on territorial cohesion indicators, carried out by Centre for International Studies on Economic Growth of the Italian University of Tor Vergata, detects and describes a set of territorial cohesion indicators to be applied in the new programming period 2007-2013. The research concluded that according to the results of the indicator systems analysis (COM 2000/594, COM 2002/551, COM 2003/585, ISTAT, ESPON 3.3), the most effective methodology to measure cohesion levels is the SteMA (Sustainable Territorial Environmental Management Approach), used by the ESPON 3.2 project. It is reported that this approach pays particular attention to territoriality, economy, environment, employment and the socio-pedagogical sector of intervention. The indicators are GDP, expenditures per capita, employment, level of prices, economic cohesion, health, infrastructure, citizens trust in European institutions, citizens' participation, school leaving, inequalities in gross distribution, risk of youth exclusion, poverty, equal opportunities and life expectancy. The research was concluded in April 2006.

### **4.3 Measuring territorial cohesion**

Although there have been previous attempts, as explained above, at measuring territorial cohesion, and although the results are pessimistic, this will not discourage the study that is currently being carried out. The driving force of this study is that it is better to have an 'inadequate' index in the beginning, which can be improved with future availability of data than to have no measure at all. The most common measure of output of a country, GDP, is full of complications, can give misleading views of the state of an economy, but it is more feasible to continue using this measure and be aware of its limitations, rather than abandon this measure altogether. It is argued that there is a trade-off between the accuracy of a measure and its operationality. Thus, a balance needs to be made between these two factors. A measure that very accurately measures territorial cohesion but which is not operational across time and space, due the very large amount of information that needs to be collected, is not a suitable measure of territorial cohesion. Conversely, neither is a measure that is operational, because it is made up of a very limited number of variables, but the results of which give very little indication of the level of territorial cohesion in the region analysed. A final point which should be mentioned is that one should not underestimate the usefulness of indices as a policy tool. It is true that indices cannot give a complete picture of the situation to be analysed, but it must be accepted that some idea is obtained from indices. Composite indices can never provide as much information as individual case studies but they can be used to provide analyses of trends, relative positions etc... Indeed, composite indices, with all their limitations, have been used in the international fora. A case in point is the determination of whether a country should be assigned LDC status or not. One of the deciding factors is based on whether a country is considered to be vulnerable, which vulnerability is measured by a composite index of vulnerability.

Thus, the principles that this research will be based upon are the following:

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<sup>27</sup> Hamez Gregory (2005) Territorial Cohesion: How to Operationalize and Measure the Concept? *Planning Theory & Practice*, Vol. 6, No. 3, 400-402, September 2005.

- better to have an 'inadequate' index, which can be improved with future availability of data and further studies, than to have none at all;
- be aware of the limitations of the index and treat its results with caution;
- the operationality of the index is very important;
- indices with limitations have been used in international fora and have served their purpose well.

Territorial cohesion can be measured by a number of variables, representing various aspects of the notion, or by a composite index, that is an average of a number of indicators of sub-indices. Basically, the advantage of having a composite index over separate variables is that it can represent aggregate measures of a combination of factors.

A composite index can thus be used to simplify complex measurement constructs and to measure multi-dimensional concepts. It has a strong political appeal due to the fact that it can simplify complex matters, such as territorial cohesion, into a single number.

In the context of policy analysis, composite indices are useful in identifying trends and drawing attention to particular issues. They can also be helpful in setting policy priorities and in benchmarking or monitoring performance. However, there are some researchers who favour keeping the variables measuring the different dimensions separate, rather than aggregating them into a single figure, such as Kaufmann's governance indicators.

The reason for such an approach is that there exists a wide range of methodological approaches to composite indices, and for this reason composite indices are often criticised due to their subjectivity. Indeed the methodology used to construct an index generates considerable debate on various aspects, such as the weighting method used, possible correlation among the different sub-indices, missing variables, standardisation procedures and others, as the results of composite indices are sensitive to different methodological choices used in their computation.

Indeed, composite indices may send misleading policy messages if they are poorly constructed or misinterpreted and may invite simplistic policy conclusions. They may also be misused, e.g. to support a desired policy, if the construction process is not transparent and if the methodology lacks sound statistical or conceptual principles.

The selection of indicators and weights could be the target of political challenge. Composite indices are averages of different sub-indices and the single value which they produce may conceal divergences between the individual components or sub-indices, possibly hiding useful information. Furthermore, a composite index may require some form of trade-off between the sub-indices of the composite index and averaging would conceal, for example, situations where the effect of one variable cancels out the effect of another. It may thus disguise serious falling in some dimensions and increase the difficulty of identifying proper remedial action and, may lead to inappropriate policies if dimensions of performance that are difficult to measure are ignored. Moreover, measurement problems may arise due to absence of data for certain variables or for certain countries, different methods of statistical compilation across countries and errors in measurement of the variables.<sup>28</sup>

#### **4.4 How to measure changes in a territory through appropriate indices**

A different selection of indicators can contribute to create increased awareness among policy makers and the local population of the implications of a local development strategy leaning towards the solidaristic

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<sup>28</sup> See Farrugia (2007).

economic model. This clearly makes the determination of a universal index of territorial cohesion not possible. Yet, this is not the aim of this task and one should not hinder the process of starting the process of indicating possible advantages and disadvantages of including certain variables instead of others.

**Table 3 - Measuring Territorial Cohesion**

Goal Dimension	Measurement Dimension	Example of selected Indicators dimension
Increase access to services of general economic interest across the territory	Communication and access to ICT	(a) Indicators of access to ICT (b) Indicators of new enterprises, male- and female-managed in the ICT business (c) Indicators of virtual communities/networks/research centres of women and of immigrant women with international contacts (d) Indicators of virtual exchanges between universities and research institutions (e) Indicators of access and use of ICT by elderly people
	Environmental quality, renewable energies, sustainable tourism  Quality of life Opportunities for training in arts, culture, creativity	(f) Indicators of sustainable use of natural resources (g) Indicators of reduction of pollution and recycling of waste (h) Indicators of energy saving and new sources of energy (i) Indicators of public management and saving of water (j) Indicators of sustainable tourism enterprises  (k) Indicators of quality of social and health services (l) Indicators of housing equipped for disabled and elderly people (m) Indicators of cities, areas in the countryside and mountains without barriers for disabled and elderly people (n) Indicators of integration of knowledge between educational areas from humanities to technological education (o) Indicators of creativity and art in different educational areas
Avoid territorial imbalances	Access to transport infrastructure Urban – Rural linkages	(a) Indicators of access to roads (b) Indicators of balance between urban and rural settlements
Polycentric territorial systems, in urban and rural areas, enabling the existence of opportunities for all	Participation and social responsibility	(a) Indicators of participation in local decision-making (b) Indicators of corporate social responsibility (c) Indicators of territorial social responsibility with all local stakeholders
	Solidarity and exchange for the positive enhancement of gender differences	(d) Indicators of the active presence of women associations in a given area (e) Indicators of female entrepreneurship and employment (f) Indicators of the presence of women in high-tech sector education (g) Indicators of the presence of women in strategic jobs
	Solidarity and exchange for the positive enhancement of differences in cultures	(h) Indicators of the presence of active associations of migrant men and women (i) Indicators of migrant male and female entrepreneurship and employment (j) Indicators of integration in school of migrants' children (k) Indicators of concrete linkages between migrants and their country of origin (l) Indicators of concrete relationships between local authorities in a given area and local authorities in other parts of the world
	Solidarity and exchange for the positive enhancement of differences between people with different abilities  Positive enhancement of traditional crafts, agriculture, and traditional productions	(m) Indicators of integration in schools and in the jobs of women and men with disabilities and of different ages (n) Indicators of social and technological projects for disabled and elderly people (o) Indicators of the elimination of barriers for disabled people (p) Indicators of integration of elderly men and women  (q) Indicators of enhancement of craft, traditional production in urban areas (r) Indicators of enhancement of craft, traditional production and traditional agriculture in rural and mountainous areas (s) Indicators of enhancement of craft and traditional production in areas that are particularly isolated

To take into account “participation”, “social responsibility”, “solidarity”, “positive enhancement of differences”, “positive enhancement of disabilities”, etc. represents a large opportunity to overcome the existing gaps between men and women in different spatial and cultural contexts, and with different abilities. There are also indicators concerned with innovation: innovation in the enhancement of traditional crafts, agriculture and local productions, innovation for the quality of the environment, renewable energy, sustainable tourism, innovation for a better quality of life, innovation in the training, culture, art and creativity, sectors, etc.

Mapping these indicators of territorial cohesion is the first step towards the support of polycentric development strategies in the framework of a solidaristic economic model.

## **5 Modelling Polycentric Development**

### **5.1 Background**

The concept of territorial cohesion discussed so far should be conceived within a broader framework of alternative economic models to the neoliberal economic model. As has been discussed earlier cohesion and competitiveness (as conceived within the neoclassic model) are not compatible policy goals.

Interesting indications were provided by the ESDP 1999 document, in which economic competitiveness was integrated as part of a golden triangle also including economic and social cohesion and the conservation of natural resources and cultural heritage. However, as it has been pointed out (Capecchi and Gallina, 2007), the path set by ESDP towards a more balanced competitiveness of the European territory was full of bumps and holes due precisely to this ambiguity. Following the ESDP 1999 document, territory became a further element to be taken into the equation and territorial capital a form of capital to be added to social, financial and human capital.

Similarly, with the ESDP, the concept of polycentric development enters in the European debate as an alternative form of urban-rural territorial relationships aiming to stop the disproportionate growth of economic poles and the decline of other peripheral areas. The geometric metaphors that followed (the pentagon, the triangle, etc.) have undeniably underlined the existence –and the increase– of imbalances, but the “alternative” ways of achieving a more balanced development have been conceived within the same framework (i.e. more competitiveness, sweetened by environmental sustainability, as in the ESDP).

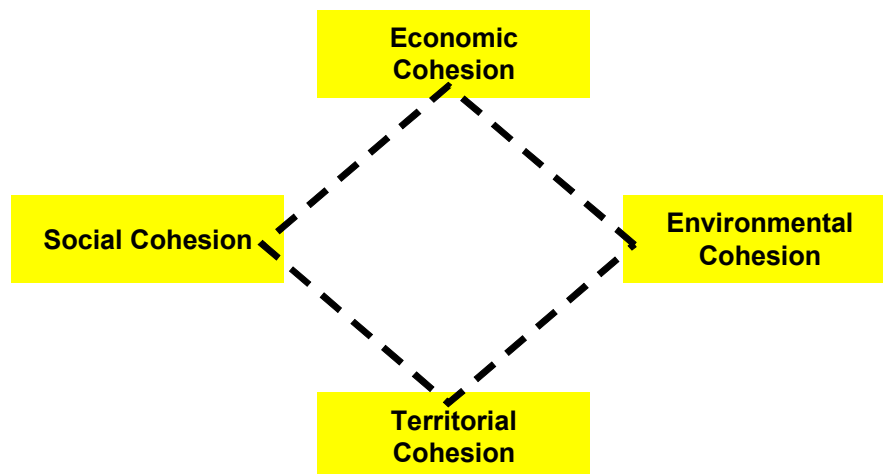
From various sources, within and outside the EU bodies, the difficulty of combining two different models, i.e. the polycentric model inspired by the European Social Model and the Lisbon Strategy model inspired by the neoliberal ideals of competitiveness, has been gradually recognised. ESPON co-funded studies have also shown that the entry of new countries in the EU calls for a re-definition of cohesion both within and outside the EU, and a renewed role for the EC towards the neighbouring and also more distant partner countries, which cannot be kept separated from internal development policies.

Within this debate, territorial cohesion still remains a blurred concept which is not yet operationalised. This paper considers territorial cohesion as one of the three pillars of a New European Social Model, together with economic cohesion and social cohesion. Most probably, a fourth dimension, i.e. environmental cohesion should be added to complete the “Cohesion Diamond”, instead of being included here and there for “mainstreaming” purposes (see Figure 5.1 below).

Only by achieving a balanced equation of the diamond, would it be possible to speak about a polycentric development model, where differences are a positive factor instead of a barrier, where growth is subjugated to development and not vice versa, and where internal dimensions and policies are not separated from external dimensions and policies (i.e. policy coherence), whereas at the same time the whole is conceived within a framework of sustainability for the future generations.

As an alternative to the ESDP triangle, we propose a Cohesion Diamond as another geometric metaphor to indicate the complexity and multidimensionality of territorial development.

**Figure 1 –The Cohesion Diamond in the Polycentric Economic Model PEM**



For each of the edge of the diamond, a composite index should be constructed and averaged with the others in order to obtain a scoreboard (the highest the index the more cohesive is a territory).

Within the scope of this task, in the following paragraphs an index of territorial cohesion is constructed taking into account all the considerations made in the previous parts of the paper.

## **5.2 The Construction of a Territorial Cohesion Index**

### **a. Defining the Concept to be Measured**

Territorial cohesion is broadly defined as: “the possibility for the population living in a territory to access services of general economic interest”.

This definition requires further clarification as follows:

- (a) *Population living in a territory*: implies the entire population resident in a specific point in time in a territory, that is, all males and females, youths, elderly, disabled, unemployed, immigrants, etc... Thus, the concept of territorial cohesion applies to all citizens, regular and irregular, irrespective of age, gender, social and civil status.
- (b) *Services of general economic interest*: These are defined by the “Europa Glossary” as commercial services of general economic utility, on which the public authorities therefore impose specific



public services obligations. The “Europa glossary” lists transport, energy and communication services as examples of services of general economic interest. One can also add basic infrastructure, essential services and knowledge. Article 16, which was written into the EC Treaty by the Treaty of Amsterdam, states that such services should operate on the basis of principles and conditions, in particular economic and financial conditions, which enable them to fulfil their mission.

- (c) *Possibility....to access*: Article 16 of the Charter of Fundamental rights of the European Union requires the Union to recognise and respect access to services of general economic interest to promote the social and territorial cohesion of the Union. Limitations to access include physical impediments (lack of physical infrastructure, landlockness, architectural barriers), cost impediments (very expensive tariffs, high poverty rate), social impediments (prohibitions to access suffered by certain segments of society, such as women, immigrants, disabled). The possibility to access can also be considered to include a time dimension to it, in that the possibility to access should not be limited solely to one generation, but it should be available also to future generations. Therefore, the definition of territorial cohesion has an implied sustainability element.

### **b. Outline of the Territorial Cohesion Index**

As explained earlier there have been a number of attempts to construct an index of territorial cohesion. However, due to data problems and the lack of a common definition of the concept, to date there does not exist a published index of territorial cohesion. Various frameworks have been proposed as explained in a previous section of the paper, including the measuring of territorial cohesion across goal dimensions.<sup>29</sup>

This section presents an index of territorial cohesion, that is, the measurement of “the possibility for the population living in a territory to access services of general economic interest”.<sup>30</sup> The index is made up of seven components, namely:

1. transport
2. energy
3. communication services
4. education
5. health
6. other essential services
7. equality

The index is based on the notion that an underlying principle of territorial cohesion as defined above is the provision of services of general economic interest. Indeed, it is contended that one cannot have access to services of general economic interest if these services are not provided. Thus one cannot have access without provision. On the other hand, provision does not imply access, due to various reasons outlined above, that is, physical, cost, social and other impediments to access.

It is therefore proposed that an index of territorial cohesion be split into a *provision* component (measuring the sustainable provision of services of general economic interest to population living in a territory) and an *access* component (measuring the access of population living in a territory to provided

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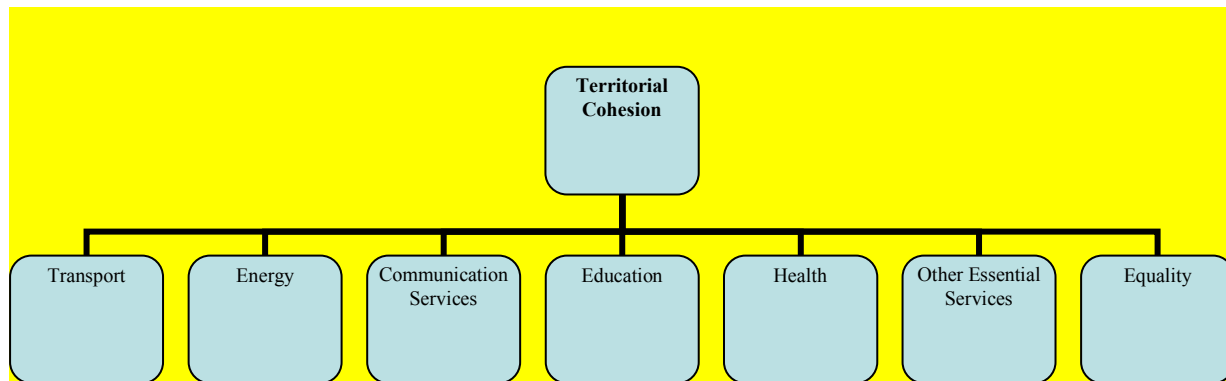
<sup>29</sup> The goal dimensions are: (1) increase access to services of general economic interest across the territory; (2) avoid territorial imbalances; and (3) polycentric territorial systems, both in urban and rural areas, enabling the existence of opportunities to all. However, since many of the indicators included in the table above are not readily available, an alternative approach was adopted.

<sup>30</sup> It should be noted that although the concept of territorial cohesion should preferably apply also to irregular immigrants living in a country, lack of relevant data, makes it impossible at present to measure this aspect.

services of general economic interest). Although, an attempt was made at dividing the territorial cohesion index into these two components, it was recognised that in practice it may be difficult to make a distinction between provision and access indicators, as this can include an element of subjectivity. Thus further research is required on this issue in order to improve this element of the composite index.

The components of the territorial cohesion index are presented in the figure below:

**Figure 2 – Components of the Territorial Cohesion Index**



### **c. Underlying Difficulties of Index Construction**

It must be stated at the outset that the construction of a composite index is met with several problems, related to the choice of the variables, dealing with missing data, dealing with different units, aggregation and weighting. A detailed consideration of these criteria is given in Farrugia (2007). Below a description of how these problems were dealt with in the construction of the territorial cohesion index presented in this paper, is provided. It must also be stated that the index was constructed according to the desirable criteria of composite indices, presented in Farrugia (2007), namely, appropriate coverage, simplicity and ease of comprehension, affordability, suitability for international comparisons and transparency.

### **d. Components of the Index**

As stated earlier the territorial cohesion index constructed was made up of 7 components, each of which will be described in more detail below.

#### *Transport*

The transport component measures the provision of and access to air and road transport. It shows that the better the air and road transport in a country, the higher its territorial cohesion. Thus a country with a good road network and easy accession to neighbouring countries has a higher territorial cohesion than a country with a very limited road network, where it is difficult to travel from one region to another and from one village to another and with difficult air connections to other countries. It should be the above relates to “accessibility” in geographical terms. However, a territory can be cohesive but can also have increasing pollution problems due to air and road connection. Thus, in order not to limit the definition such that remoteness becomes synonymous of non-cohesiveness, an additional variable measuring CO2 emissions is included. The inclusion of this variable allows us to also deal with the environmental aspects related to air and road connection.

The transport component consists of 3 variables, namely:

1. Air transport: Domestic takeoffs and takeoffs abroad of air carriers registered in the country (% of population).
2. Road network: Motorways, highways, and main or national roads, secondary or regional roads, and all other roads in a country (% of total land area).
3. CO2 emissions (metric tons per capita): Carbon dioxide emissions are those stemming from the burning of fossil fuels and include carbon dioxide produced during consumption of solid, liquid and gas fuels and gas flaring.

It should be noted that while the indicators for air transport and road network are ranking in descending order, i.e., the higher the value obtained the higher the level of territorial cohesion, the CO2 emissions indicator was ranked in ascending order, i.e., the lower the value obtained implied a higher level of territorial cohesion. It is also noted that air and road transport are not the only means of commuting. Indeed, one could also include indicators of rail and marine transport. However, rail transport indicators were very limited and available for only a limited number of countries, while marine transport was considered to be an inadequate indicator, as not all countries have access to the sea, since many are surrounded by other countries, rather than by the sea.

### *Energy*

The energy component measures the provision and consumption of energy. It consists of the following 4 variables, namely:

1. Electric power consumption (kWh per capita): This variable measures the provision and consumption of energy. A higher value on this indicator would imply that an economy has a higher level of territorial cohesion than a country with a lower value.
2. GDP per unit of energy use (constant 2000 PPP \$ per kg of oil equivalent): This variable measure the sustainability of energy production. If only a small quantity of output is produced per unit of energy, this implies that the energy generated is not being put to good use. Thus lower values imply higher territorial cohesion.
3. Electric power transmission and distribution losses (% of output): This indicator measures the quality of the production of energy. High power transmission and distribution losses may imply that a country is wasting resources in the production of energy, since this is being lost and not put to good use. Thus as above lower values imply higher territorial cohesion.
4. Proportion of energy from sources other than coal and oil: A low value on this indicator implies that the sustainability of energy production is negatively impacted and that there are high pollution levels in the economy. The inclusion of this indicator helps the index to be more representative of the definition of territorial cohesion proposed in this paper, as it would remove the supposition that more industrial areas equals higher cohesion.

Attempts were also made to include indicators of access to energy services, namely days of electrical outages, which would give a good measure of the quality of electricity production. However, this indicator was not available for a large number of countries and thus, the use of this indicator had to be discarded.

### *Communication Services*

The communication services component measures the provision and access to the internet, telephone services, and other communication services such as television. Each of these components is described in more detail below:

1. Internet: This component measures the provision of internet services, namely (i) the international internet bandwidth (bits per person) and (ii) the number of internet users per 1,000 people. It also attempts to measure the access of such services, in terms of cost, by including the price basket per internet (\$ per month). Initially, the number of personal computers per 1,000 people was also considered as a possible indicator. However, it was recognised that a personal computer without an internet connection cannot be considered as a communication tool, and therefore in order not to burden the territorial cohesion index with too many variables it was decided to exclude this variable from the index.
2. Telephone: Telephone as a communication service was analysed by considering the provision and access of fixed line telephones as well as the provision and access to mobile phones, as the latter are becoming increasingly popular as communication tools. The provision to fixed line telephony was measured by taking the number of telephone mainlines per 1,000 people, while the access to fixed line telephony was measured by the average of the price basket for residential fixed lines (US\$ per month)- as an indicator of the costs of local fixed costs, and a proxy for international calling costs, by taking the telephone average cost of calls to the US (US\$ per 3 minutes). The quality of fixed line telephone provision, a good measure of its non-cost access can be measured by taking the telephone faults per 1,000 mainlines. This indicator was not considered in the territorial cohesion index provided, as it was not available over a wide range of countries. The provision to mobile telephony was measured by taking the mobile phone subscribers per 1,000 people, while its access was measured by taking the price basket per mobile (US\$ per month). Access to mobile telephony was also going to be measured by considering the proportion of the population covered by mobile telephony, as it is recognised that not all regions in a country are covered by mobile phone reception. However, only limited data was available and the indicator therefore had to be excluded.
3. Other communication services: The provision and access to other communication services was measured by the proportion of households with televisions. It can be argued that this is an insufficient indicator as other communication services can also include the provision and access to daily newspapers and radio, which were not included due to data limitations. However, it can likewise be argued that these are likely to be positively correlated. In the absence of available data, however, this hypothesis cannot be tested.

### *Education*

The education component measures the provision and access of education at primary, secondary and tertiary levels. This was measured by taking the expenditure per student (% of GDP per capita) at each of these levels, and the enrolment at each of these levels. Other possible indicators, which were not included so as not to unnecessarily burden the territorial cohesion index are literacy rates, pupil-teacher ratios, ratios classified by gender etc...

### *Health*

The health component measures the provision and access to health services. This was measured by taking a simple average of the following variables:

1. Health expenditure per capita (current US\$)
2. Hospital beds per 1,000 people
3. Physicians per 1,000 people
4. Life expectancy at birth (years).

### *Other Essential Services*

The other essential services component was measured by taking a simple average of the following indicators:

1. improved water source (% of population with access)
2. improved sanitation facilities (% of population with access).

This index is therefore a measure of basic infrastructure which is considered to be essential and low values on this component imply that a country has a low level of territorial cohesion.

### *Equality*

As detailed above, territorial cohesion implies that there are no limitations to access to services of general economic interest. It was argued that limitations to access include physical impediments (lack of physical and social infrastructure), which are measured by some of the indicators listed above, cost impediments (high tariffs), which are also measured above, as well as other impediments, which we termed social impediments, which include prohibitions to access suffered by certain segments of society, such as women, immigrants and disabled). This component attempts to measure the latter form of prohibition to access, namely social impediments. It thus tries to measure the level of equality in the country, between income groups, males and females and urban and rural. It is made up of 3 components as follows to measure equality across the following dimensions:

1. urban-rural: This was measured by taking the difference between the provision and access to water and sanitation in urban areas as opposed to rural areas.
2. females: This was measured by the HDI's Gender Empowerment Index.
3. income groups: This was measured by the GINI coefficient.

### **e. Data Used and Missing Data**

All data was obtained from the World Development Indicators of the World Bank, as this is the most comprehensive indicator database available, excepted for the measure of gender equality, which was obtained from the UNDP's Gender Empowerment Measure.

The computation of the index should be considered as an exercise comparing data between countries and not between regions within countries. It was computed for 22 countries, which is a disappointingly low sample considering that data was obtained from a data bank containing data on 208 countries. Most countries had to be excluded from the computation of the territorial cohesion index because they lacked data on the other essential services component and on the equality component. Although the importance of these two components is considered as essential for the measurement of territorial cohesion, in order to obtain a picture of the situation of more countries, the territorial cohesion index was re-computed excluding these two components. This increased the number of countries covered to 52. The results of the territorial cohesion index and the modified territorial cohesion index are presented in Appendix 1 and 2, respectively. It should be noted that a Spearman rank correlation test of the two indices yielded a value of 0.98.

Therefore, the index construction was affected by missing data. Most of the variables selected for inclusion in the composite index are available only across a limited number of countries. In order to deal with the missing data problem, cold deck imputation was used. In general the index was constructed using 2005 data, that is, the most recent data available. Cold deck imputation implies that if data is not available for a particular year for a particular country, then a previous year is utilised. This could introduce a bias in the indicators, as for example, if a country registers significant progress in recent years and the latest indicators are not available, then this progress will not be captured in the index. However, it was argued

that it is better to include a previous year's variable, than not to include the variable at all. It was also decided that should one of the indicators making up the composite index be missing, even within the sub-components, then the territorial cohesion index was not computed for the country in question. This was done in order to ensure that no country's score suffers from any sort of bias. It did however result in many countries having to be excluded from the analysis. However, it does imply that the index constructed does not suffer from any bias and that all countries can be compared against each other.<sup>31</sup>

#### f. Normalisation

Another issue that one has to deal with when constructing a composite index, such as the one presented in this paper is that the indicators are measured in different units. For instance, some indicators give a measure per 1,000 people, such as physicians, telephone lines; other indicators are expressed in percentage form, such as the enrolment ratios, improved water source and improved sanitation facilities; while other indicators are measured in different units, such as life expectancy, which is measured in years. Since all these indicators are measured in different units, it is very difficult to aggregate such indicators and to make comparisons on how countries fare in the different indicators.

Thus, the indicators had to be converted to a similar unit or scale. The method adopted was the rescaling method. This is probably the most common normalisation method, used in a number of composite indices, such as the Human Development Index, the Vulnerability Index and the Resilience Index, to name a few. The rescaling method normalises indicators between the range (0,1) by means of the following formula:

$$XS_{ij} = \frac{(X_{ij} - MinX_j)}{(MaxX_j - MinX_j)},$$

Where  $XS_{ij}$  is the value of the normalised observation for country  $i$  of component  $j$ ,  $X_{ij}$  is the actual value of the same observation,  $MinX_j$  and  $MaxX_j$  are the minimum and maximum values of the same observations for component  $j$ .

This formula was applied for those indicators, which can be terms as ascending indicators, that is, the higher the value the better the placing of the country. Such indicators include the number of mobile phone subscribers, expenditure per student, hospital beds, etc... Application of this formula would give a value of 1 to the country with the best placing and a value of 0 to the country with the worst placing.

However, there are other variables where a higher value implies a worse situation compared to a lower value, such as cost indicators. These indicators can be termed as descending indicators. For descending indicators, the formula had to be modified as follows:

$$XS_{ij} = \frac{(X_{ij} - MaxX_j)}{(MinX_j - MaxX_j)}.$$

It should be noted that since the territorial cohesion index was made up of a number of sub-indices, and sub-indices were computed by taking an average of normalised variables, the sub-indices were re-normalised, after such averages were computed, so that all 7 sub-indices were re-scaled within the range (0,1).

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<sup>31</sup> An exception was made in the case of Vietnam, which had a missing indicator on the Gender Empowerment Index, but was retained anyway, given one of the author's special interest in analyzing the territorial cohesion of the country.

### g. Weighting and Aggregation

The territorial cohesion index was aggregated using equal weighting, that is, all seven components were given the same weight in the index. The simple average method as opposed to a method of differential weights, where one component would be given a higher weight than other components was chosen for 2 reasons, the first being that there is insufficient knowledge on which components mostly contribute territorial cohesion and by how much, and secondly because it was considered that no component is more important than others. However, further research may prove the contrary.

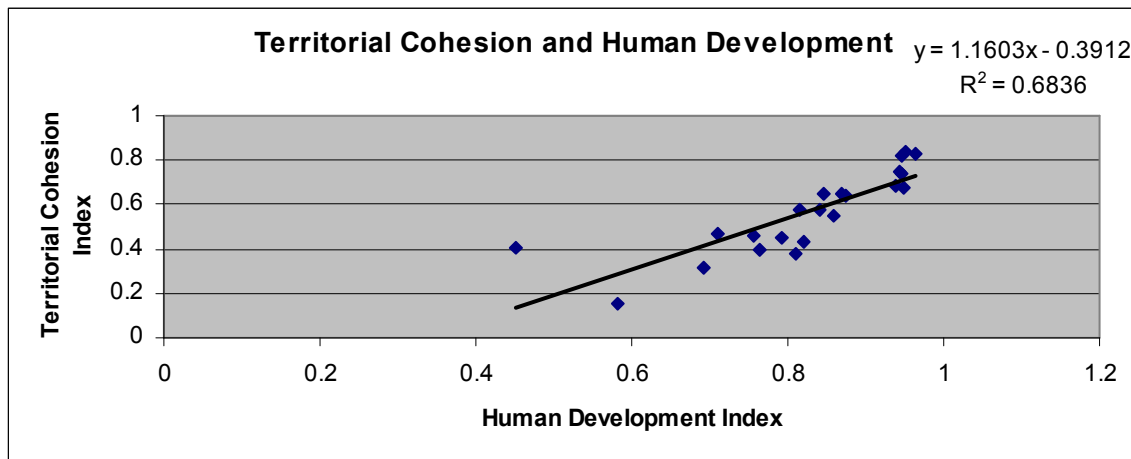
### 5.3 Computation of the Composite Index

The results show that the countries with the highest territorial cohesion are Sweden, Norway and Switzerland, respectively, followed by Austria and Finland. On the other hand, the countries with the lowest level of territorial cohesion are Panama, Bolivia and Cambodia. Malta placed in the 10<sup>th</sup> position, while Vietnam placed 14<sup>th</sup>.

Further analysis on the results of the territorial cohesion index produced a number of interesting observations, which need further research in order to further analyse their meaning and implications.

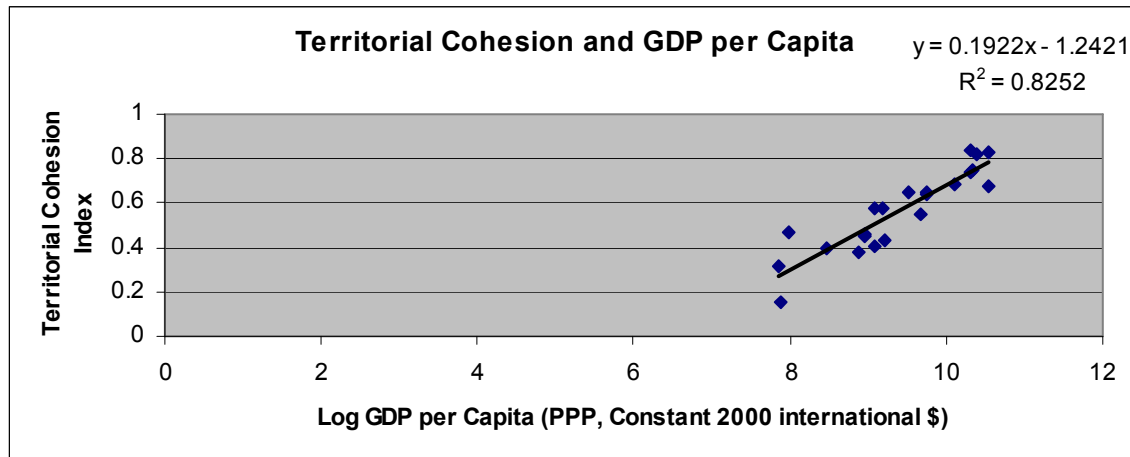
1. Territorial cohesion is positively correlated to the level of human development. However, this statement needs further research as it does not shed light on causality. That is, does a level of territorial development bring about a higher level of territorial cohesion, or does territorial cohesion help an economy achieve a higher level of human development?

Figure 3 – Territorial Cohesion and Human Development



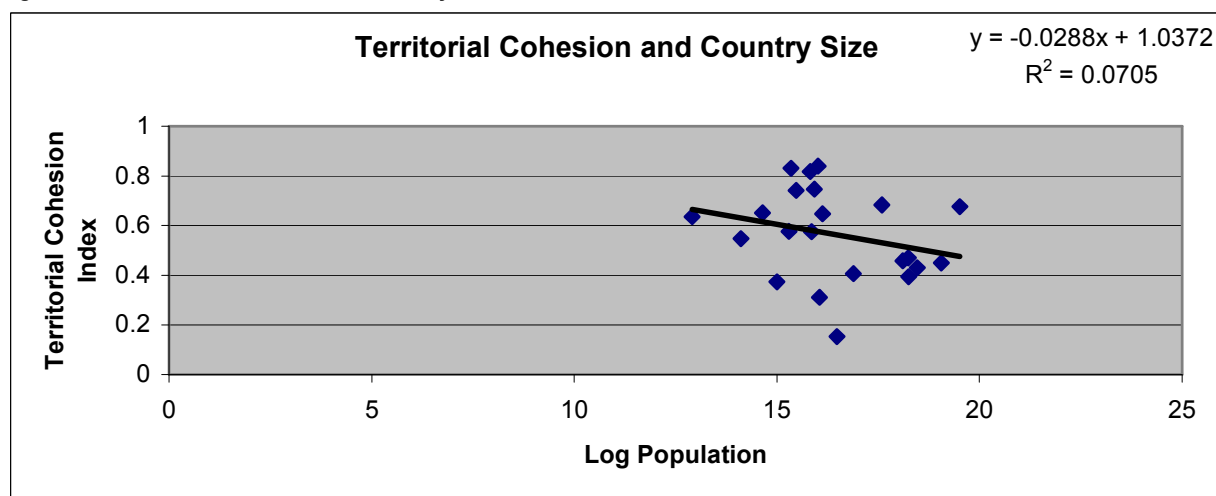
2. Territorial cohesion is strongly positively correlated to output. This can be seen from the figure below. However, as above, this statement needs further research as it does not shed light on causality. That is, does higher output give rise to territorial cohesion, or does territorial cohesion help an economy achieve a higher level of output?

Figure 4 – Territorial Cohesion and GDP per Capita



3. Population size is negatively correlated to territorial cohesion. Small countries experience on average a higher level of territorial cohesion than larger countries. However, the  $R^2$  value obtained is very low.

Figure 5 – Territorial Cohesion and Country Size



#### a. Correlation between the Components of the Index

The following table shows the correlation between the components of the index. It can be seen that the transport index is negatively correlated to all the other components. The other components are positively correlated with one another, some more than others, as the table shows.



**Table 4 – Correlations of Index Components**

	<i>Transport Index</i>	<i>Energy Index</i>	<i>Communications Index</i>	<i>Education Index</i>	<i>Health Index</i>	<i>Equality Index</i>	<i>Other Essential Services Index</i>
Transport Index	1.00						
Energy Index	-0.08	1.00					
Communications Index	-0.26	0.28	1.00				
Education Index	-0.45	0.33	0.80	1.00			
Health Index	-0.24	0.47	0.85	0.77	1.00		
Equality Index	-0.27	0.46	0.80	0.72	0.86	1.00	
Other Essential Services Index	-0.18	0.26	0.80	0.63	0.77	0.71	1.00

## 5.4 Conclusions and Further Research

The attempt at the construction of a territorial cohesion index raised a number of interesting and important issues. First of all, the index quantified a concept, which is complex, sometimes ambiguously defined, and which is multidimensional. The index computed showed some interesting results, namely that territorial cohesion is strongly positively correlated to the level of human development of a country and to its output.

However, it is recognised that such research is very preliminary and inconclusive. Indeed, it has a number of limitations, primarily related to data availability. The lack of data resulted in the index being computed for a limited number of countries. Also, data may not always represent an accurate picture of the current situation. For instance, in the case of cost statistics, these are presented in US\$, not in PPP, which may make a difference. Besides that it is also recognised that reliable hard data sources do not exist from some important aspects of territorial cohesion. In particular, we would have liked to have introduced the use of additional variables, such as the ratio between energy produced by fossil sources, the presence/absence of agri-eco tourism companies, and others, in order to take into account the fact that territorial cohesion is not limited to access but also to quality of life.

Since the index is a composite index, it may conceal some divergences in the different components. In addition, the rankings obtained should not be confused with the actual values of the indicators. The difference in territorial cohesion, say 5 places apart from one another on the rankings are not the same at all points in the index. Other limitations pertain to the subjective decisions made in computing the index. These can be debatable and revised following further research.

However, it should be pointed out that the index helped provide a pathway and a foundation for further work on the subject. As observed, the index is computed for countries from a sample of countries in the world. The approach can also be adapted to the EU member states, where a lot of policy attention is being directed towards territorial cohesion, and computed for regions within the EU. It can also be applied to other regions. All raw data and workings of the territorial cohesion index presented in this study are available.

Finally, the study shows that territorial cohesion is an important concept and one which merits further research and analysis on a quantitative level.

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## 7 APPENDIX 1:

### TERRITORIAL COHESION INDEX

Country	Transport Index	Energy Index	Communications Index	Education Index	Health Index	Essential Services Index	Equality Index	Territorial Cohesion Index	Rank
Austria	0.3959	0.6611	0.6895	0.6978	0.9111	1.0000	0.8719	0.7468	4
Bolivia	0.4722	0.3458	0.1239	0.5164	0.1797	0.5141	0.0298	0.3117	21
Brazil	0.4599	0.5416	0.4148	0.6082	0.3722	0.7535	0.0000	0.4500	16
Bulgaria	0.3402	0.1944	0.6629	0.5754	0.5767	0.9859	0.6939	0.5756	12
Cambodia	0.5055	0.4057	0.0000	0.0000	0.0000	0.0000	0.1606	0.1531	22
Costa Rica	0.5235	0.7413	0.6044	0.3571	0.3896	0.9225	0.4945	0.5761	11
Estonia	0.1760	0.0000	0.7829	0.7127	0.5562	0.9789	0.6295	0.5480	13
Finland	0.1470	0.6147	0.7363	1.0000	0.7633	1.0000	0.9294	0.7415	5
Hungary	0.4635	0.4418	0.6384	0.7311	0.6272	0.9577	0.6701	0.6471	9
Latvia	0.5203	0.5057	0.7458	0.8011	0.5757	0.8380	0.5733	0.6514	8
Malta	1.0000	0.1387	0.6894	0.4259	0.6607	1.0000	0.5405	0.6364	10
Mexico	0.3770	0.3062	0.4918	0.3596	0.3529	0.8310	0.2944	0.4304	17
Norway	0.3560	1.0000	0.7769	0.7969	0.8853	1.0000	1.0000	0.8307	2
Panama	0.4681	0.4468	0.2688	0.1551	0.3858	0.7394	0.1538	0.3740	20
Philippines	0.5149	0.3961	0.2865	0.2291	0.2532	0.6972	0.3842	0.3945	19
Romania	0.4280	0.2574	0.5849	0.5611	0.4643	0.3944	0.1536	0.4063	18
Spain	0.4019	0.4924	0.6247	0.8045	0.6929	1.0000	0.7698	0.6838	6
Sweden	0.4347	0.7515	1.0000	0.9312	0.7871	1.0000	0.9760	0.8401	1
Switzerland	0.5166	0.8205	0.8024	0.7800	1.0000	1.0000	0.7979	0.8168	3
Turkey	0.4383	0.3952	0.5668	0.3738	0.3244	0.8873	0.2145	0.4572	15
United States	0.0000	0.4363	0.8518	0.9021	0.8332	1.0000	0.7094	0.6761	7
Vietnam	0.5192	0.3421	0.4672	0.6303	0.2448	0.6197		0.4706	14

## 8 APPENDIX 2:

### MODIFIED TERRITORIAL COHESION INDEX

Country	Transport Index	Energy Index	Communications Index	Education Index	Health Index	Modified Territorial Cohesion Index	Rank
Albania	0.5326	0.4944	0.3915	0.1747	0.3810	0.3948	42
Armenia	0.4985	0.5569	0.3769	0.1840	0.5270	0.4286	40
Australia	0.0000	0.3602	0.7530	0.9480	0.8127	0.5748	23
Austria	0.4175	0.6972	0.6653	0.6925	0.9111	0.6768	10
Belarus	0.3423	0.4038	0.6706	0.6016	0.7126	0.5462	26
Belgium	0.6419	0.6302	0.6602	0.7682	0.8881	0.7177	7
Bolivia	0.4911	0.4154	0.1196	0.5125	0.1797	0.3437	46
Brazil	0.4792	0.5904	0.4003	0.6036	0.3722	0.4892	32
Bulgaria	0.3638	0.2802	0.6396	0.5710	0.5767	0.4863	34
Cambodia	0.5232	0.4689	0.0000	0.0000	0.0000	0.1984	52
Costa Rica	0.5406	0.7688	0.5832	0.3544	0.3896	0.5273	27
Cyprus	0.3643	0.2588	0.7857	0.5461	0.5864	0.5083	30
Czech Republic	0.3004	0.3140	0.6151	0.4904	0.7122	0.4864	33
Denmark	0.4165	0.5550	1.0000	1.0000	0.7597	0.7462	6
Estonia	0.2055	0.1064	0.7554	0.7073	0.5562	0.4662	37
Finland	0.1775	0.6557	0.7105	0.9925	0.7633	0.6599	12
France	0.4870	0.7045	0.6123	0.8641	0.8907	0.7117	8
Greece	0.3380	0.3690	0.6182	0.7989	0.7670	0.5782	22
Hungary	0.4827	0.5012	0.6160	0.7256	0.6272	0.5905	21
Iceland	0.4032	0.9259	0.8092	0.9702	0.9720	0.8161	1
India	0.5614	0.1447	0.0387	0.1391	0.1186	0.2005	51
Iran, Islamic Rep.	0.3373	0.3803	0.4674	0.1927	0.2322	0.3220	47
Ireland	0.5231	0.6101	0.5577	0.7079	0.7404	0.6279	16
Israel	0.2615	0.3379	0.7525	0.6568	0.7557	0.5529	25
Italy	0.4180	0.6225	0.6906	0.7357	0.8056	0.6545	13
Jamaica	0.5602	0.0000	0.4408	0.2704	0.2504	0.3044	48
Japan	0.4777	0.5732	0.7085	0.6436	0.9632	0.6732	11
Latvia	0.5374	0.5583	0.7197	0.7950	0.5757	0.6372	14
Malaysia	0.3484	0.4150	0.6560	0.2897	0.2901	0.3998	41
Malta	1.0000	0.2304	0.6652	0.4227	0.6607	0.5958	20
Mexico	0.3993	0.3801	0.4745	0.3569	0.3529	0.3927	43
Morocco	0.4807	0.3343	0.2396	0.1914	0.2012	0.2894	50
Netherlands	0.5794	0.5746	0.9170	0.8992	0.7826	0.7506	5
New Zealand	0.4219	0.6340	0.7116	0.9814	0.6819	0.6862	9
Norway	0.3790	1.0000	0.7497	0.7909	0.8853	0.7610	4
Oman	0.1435	0.4034	0.4058	0.1930	0.3522	0.2996	49
Panama	0.4871	0.5057	0.2594	0.1540	0.3858	0.3584	44
Philippines	0.5323	0.4604	0.2765	0.2274	0.2532	0.3499	45
Poland	0.3710	0.1376	0.6103	0.8001	0.5315	0.4901	31
Portugal	0.4453	0.4999	0.5310	0.7302	0.6439	0.5700	24

Romania	0.4485	0.3365	0.5644	0.5569	0.4643	0.4741	35
Slovak Republic	0.3644	0.4839	0.6690	0.4265	0.6070	0.5102	28
Slovenia	0.4443	0.5132	0.7334	0.8665	0.5949	0.6304	15
Spain	0.4233	0.5465	0.6028	0.7984	0.6929	0.6128	19
Sweden	0.4549	0.7780	0.9650	0.9242	0.7871	0.7818	3
Switzerland	0.5339	0.8396	0.7743	0.7741	1.0000	0.7844	2
Tunisia	0.4552	0.6478	0.5432	0.3793	0.3189	0.4689	36
Turkey	0.4584	0.4596	0.5469	0.3710	0.3244	0.4320	39
United Kingdom	0.3918	0.5827	0.7687	0.6630	0.6749	0.6162	18
United States	0.0358	0.4963	0.8220	0.8953	0.8332	0.6165	17
Uruguay	0.5005	0.6279	0.5038	0.4054	0.5094	0.5094	29
Vietnam	0.5364	0.4121	0.4508	0.6256	0.2448	0.4539	38